TIBCO Adapter™ for Siebel

User's Guide

Software Release 5.3.2
June 2011

Important Information

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Preface

This User's Guide is intended for system administrators of networks running TIBCO Adapter™ for Siebel software, as well as for system integrators, who plan to integrate Siebel with another system. Readers of this guide must be experienced system administrators and system integrators. This includes administration and configuration experience with the TIBCO environment and Siebel Enterprise applications. This manual assumes familiarity with the basic concepts of the TIBCO environment, and Siebel Enterprise technology.

Topics

Related Documentation

This section lists documentation resources you may find useful.

TIBCO Adapter for Siebel Documentation

The following documents form the TIBCO Adapter for Siebel documentation set:

- *TIBCO Adapter for Siebel User's Guide*: This manual explains concepts relating to the adapter and the application with which it interacts. Installation, configuration and deployment information is included in this manual.
- *TIBCO Adapter for Siebel Examples Guide*: This manual provides instructions to run the examples that demonstrate use of the adapter.
- *TIBCO Adapter for Siebel Release Notes*: Read this document for information about new features, deprecated features, and open and closed issues.
- *TIBCO Adapter Concepts*: This manual introduces adapters by explaining what they are, and explains how to install, configure, deploy and manage adapters.
- *TIBCO Adapter for Siebel readme.txt:* Read this document to check the current release number, supported platforms and required software.

Other TIBCO Product Documentation

You may find it useful to read the documentation for the following TIBCO products. Note that only books that relate to adapters are listed. Each of the books is available from the `doc` directory in the product's installation area.

- TIBCO Designer™ software:
  - *TIBCO Designer User's Guide*
  - *TIBCO Designer Palette Reference*
  - *TIBCO Designer Release Notes*
- TIBCO Administrator™ software:
  - *TIBCO Administrator User's Guide*
  - *TIBCO Administrator Server Configuration Guide*
  - *TIBCO Administrator Release Notes*

- TIBCO BusinessWorks™ software:
  - *TIBCO BusinessWorks Concepts*
  - *TIBCO BusinessWorks QuickStart*
  - *TIBCO BusinessWorks Process Design Guide*
  - *TIBCO BusinessWorks Palette Reference*
  - *TIBCO BusinessWorks Installation*
  - *TIBCO BusinessWorks Release Notes*
- TIBCO IntegrationManager™ software:
  - *TIBCO IntegrationManager Concepts*
  - *TIBCO IntegrationManager Administrator's Guide*
  - *TIBCO IntegrationManager Process Design Guide*
  - *TIBCO IntegrationManager Reference*
  - *TIBCO IntegrationManager Release Notes*
- TIBCO Rendezvous™ software:
  - *TIBCO Rendezvous Concepts*
  - *TIBCO Rendezvous Administration*
  - *TIBCO Rendezvous Configuration Tools*
- TIBCO Enterprise Message Service™ software:
  - *TIBCO Enterprise Message Service User's Guide*
  - *TIBCO Enterprise Message Service Installation*
  - *TIBCO Enterprise Message Service Application Integration*
  - *TIBCO Enterprise Message Service Release Notes*
- TIBCO Hawk® software:
  - *TIBCO Hawk Installation and Configuration*
  - *TIBCO Hawk Administrator's Guide*
- TIBCO Adapter™ SDK
  - *TIBCO Adapter SDK Concepts*

- TIBCO Runtime Agent™ software
  - *TIBCO Runtime Agent Release Notes*
  - *TIBCO Runtime Agent Installation*
  - *TIBCO Runtime Agent Domain Utility User's Guide*
  - *TIBCO Runtime Agent Upgrading to Release 5.3*

Third Party Documentation

You may also find it useful to read the Siebel Bookshelf, available from Siebel Systems Inc.

Terminology and Acronyms

Acronym	Meaning
API	Application Programming Interface.
AE	TIBCO ActiveEnterprise
GUI	Graphical User Interface.
COM	Component Object Model.
MVF	Siebel Multi-Value Field.
MVL	Siebel Multi-Value Link.
QOS	TIBCO Rendezvous quality of service.
RPC	Remote Procedural Call.
RV	Refers to TIBCO Rendezvous reliable quality of service, as opposed to certified message.
RVCM	Refers to TIBCO Rendezvous certified quality of service.
RVCMQ	Refers to TIBCO Rendezvous distributed queue message.
W3C	World Wide Web Consortium.
UAN	Universal Application Network.
TIBCO_HOME	The folder where all TIBCO products are installed on the host. For example, `C:\Tibco`.
<Adapter_Home>	The location where the adapter has been installed on the host.
Inbound	Events coming into the adapter. It refers to the inflow of data into the Siebel application. It is applicable to Subscription and Request-response services.
Outbound	Events going out from the adapter. It refers to data being captured from the Siebel application and being sent out. It is applicable to the Publication Service.
JMS	Java Messaging Service.
VPD	Vital Product Database

Acronym	Meaning
Object Manager	Object Manager is a component of the Siebel Server that is responsible for communication between the Siebel Server and Client application.
Siebel Workflow	A process that allows an organization to identify the flow of data throughout the enterprise and pass data to and from external applications using Siebel eBusiness Application Integration (EAI).
HTTP Listener	HTTP Listener is a component embedded in TIBCO Adapter for Siebel, that is responsible for listening to the HTTP requests from the Siebel application.

How to Contact TIBCO Customer Support

How to Join TIBCOmmunity

TIBCOmmunity is an online destination for TIBCO customers, partners, and resident experts, a place to share and access the collective experience of the TIBCO community. TIBCOmmunity offers forums, blogs, and access to a variety of resources. To register, go to http://www.tibcommunity.com.

How to Access All TIBCO Documentation

After you join TIBCOmmunity, you can access the documentation for all supported product versions here:

http://docs.tibco.com/TibcoDoc

How to Contact TIBCO Support

For comments or problems with this manual or the software it addresses, please contact TIBCO Support as follows.

- For an overview of TIBCO Support, and information about getting started with TIBCO Support, visit this site:

  http://www.tibco.com/services/support

- If you already have a valid maintenance or support contract, visit this site:

  https://support.tibco.com

  Entry to this site requires a user name and password. If you do not have a user name, you can request one.

Chapter 1 Introduction

This chapter explains how to install the adapter on Microsoft Windows and UNIX systems.

Topics

Siebel eBusiness Applications Overview

Siebel Systems provide the most comprehensive family of multi-channel eBusiness applications and services. Siebel eBusiness Applications enable organizations to create a single source of customer information. This facilitates selling, marketing, and servicing customers across multiple channels, including the web, call centers, field, resellers, retail, and dealer networks.

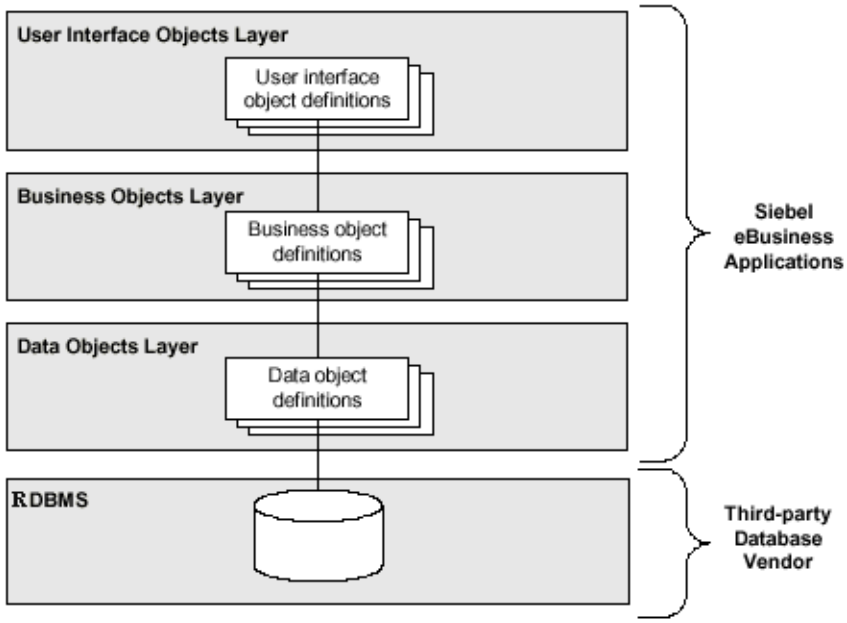
This section describes the Siebel core architecture. The Siebel architecture allows The adapter to operate on all Siebel core and industry applications, independent of the underlying database platform.

Siebel Multi-layered Architecture

Siebel eBusiness Application uses a multi-layered architecture as the foundation for building Siebel applications. The Siebel application architecture consists of the following layers:

- User Interface Objects Layer
- Business Objects Layer
- Data Objects Layer
- Relational Database Management System (RDBMS)

Figure 1 Multi-layer Architecture



A Siebel application uses an object definition to implement one piece of the software - either, a user interface, an abstract representation, or a direct database representation construct. An object definition consists of properties which characterize the software construct that the object definition implements.

Object definitions in a given layer depend on definitions in the next lower layer, and are insulated from other layers in the architecture. For example, you can make changes to a Siebel application without changing the underlying database structure. Similarly, you can extend the Siebel database schema without impacting the Siebel application.

A standard Siebel application provides a core set of object definitions, which you can use as the basis for your own tailored application.

Siebel Enterprise provides an application configuration tool called **Siebel Tools**, which enables you to customize Siebel applications, by modifying and creating object definitions.

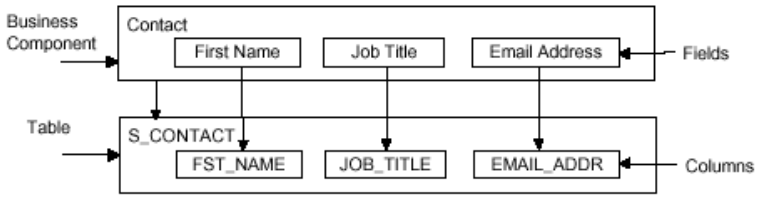
User Interface Objects Layer

The User Interface Objects Layer defines the visual elements with which users interact. The Business Objects Layer insulates it from the Data Objects layer and the underlying database.

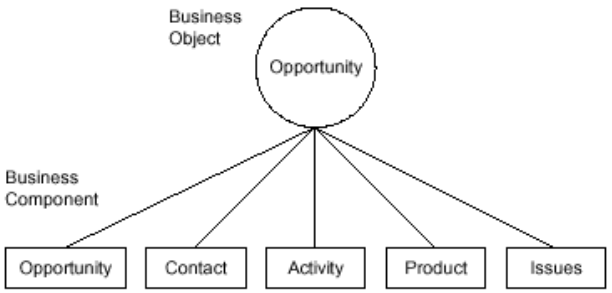
Business Objects Layer

The following are the major object types in the Business Objects Layer:

1. Business Component — Represents a fundamental business entity in the enterprise, which consists of multiple fields that characterize it. For example, Contact, Business Address, or Activity.



2. Business Object — Represents a major functional area in the enterprise, which consists of a collection of one or more related business components. For example, the Opportunity Business Object consists of Opportunities and related Contacts, Activities, Products, and Issues.



Integration Objects

Siebel integration objects allow representing integration metadata for Siebel Business Objects as common structures that the EAI infrastructure can understand. These are logical objects representing multiple Business Objects in a single entity.

Data Objects Layer

Object definitions in the Data Objects Layer provide a logical representation of the underlying physical database (constructs like 'table', 'column' and 'index'), and are independent of the installed RDBMS.

Relational Database Management System

This is a third party system. Siebel supports IBM DB2, MS SQL Server and Oracle databases. For details on versions and platforms, refer to the Supported Platforms section of the Siebel Bookshelf accompanying your Siebel Application.

Siebel Workflow

This is a process that allows an organization to identify the flow of data throughout the enterprise, and pass data to and from external applications using Siebel eBusiness Application Integration (EAI).

Adapter Overview

The adapter enables exchange of data between a Siebel system and other external systems through the TIBCO environment in real-time.

The adapter defines a Business Event Specification to describe how data is sent into and sent out of the Siebel system. The Business Event Specification is configured according to the Siebel Business Object model.

This book explains the use of the adapter and its configuration using TIBCO Designer. TIBCO Designer is a configuration tool that provides a standardized means to configure all TIBCO adapters.

Features

The adapter provides a rich set of features, which offer maximum flexibility for configuration and deployment in real-life usage scenarios.

The salient features are listed below. Refer to the relevant sections of this document for detailed description and usage information. For additional adapter features, refer to the *TIBCO Adapter Concepts Book*.

- **Support for Integration Object Schema Using XML Tags** The adapter now supports downloading of Integration Object Schema either with XML tags or with field names for Publication and Subscription Services.
- **Support for Return of Status Keys for Integration Objects** The adapter now supports return of Status Keys for an `INSERT`, `UPDATE`, `UPSERT` or `DELETE` operation on Integration Objects. The `Status Keys` need to be configured for every Integration Object in Siebel (Refer *Siebel Bookshelf* for more information on `Status Keys`).
- **Support for Dynamic Substitution of Parameters in HTTP Business Service** The adapter now supports the dynamic substitution of EAI TIBCO HTTP Agent Business Service parameters during invocation. The parameters, which are supported for dynamic substitution, are `HTTP Timeout` and `HTTP Agent Server`. During Request-Response invocation, the `HTTP Timeout` parameter can be set within the request. The Business Service waits for the `HTTP` reply from the adapter, for a specified duration before timing out. This parameter, if specified in the request, overrides the parameter specified in the Business Service user properties.

  The `HTTP Agent Server` parameter can be set within the user properties. The Business Service invokes the adapter server using this parameter. This parameter, if specified in the request, overrides the parameter specified in the Business Service user properties.

- **Support for Asynchronous Workflow Invocation** The adapter now supports invocation of workflow asynchronously. The adapter returns the `Request Id` of the asynchronous workflow request. This is applicable for Subscription and Request-Response Services.
- **Supports for return of Output Parameters for Workflow Invocation** The adapter now returns all the parameters of the workflow output after the workflow invocation. This is applicable for Subscription and Request-Response Services.
- **Support for TIBCO BusinessWorks** The adapter can be used in a TIBCO BusinessWorks 5.3 process.
- **Adapter Services** The adapter provides Publication, Subscription, Request-Response and Request-Response Invocation services. Basic configuration templates are provided in TIBCO Designer, which you can use to configure adapters and services to control your enterprise's data. The services are described in detail in the next section.
- **Support for Siebel Database on Microsoft Windows and UNIX** As Siebel data is accessed via the Siebel Object Interface, the Siebel Business Rules are preserved regardless of the underlying database platform.
- **Ability to use Multiple Levels of Siebel Business Components** The adapter can be configured to use multiple levels of Siebel business components from Siebel Business Objects.

The multiple levels of Siebel business components can only be used in a hierarchical structure.

- **Ability to Invoke Siebel Business Service** The adapter can invoke Siebel Business Service. The adapter can invoke any method in a Siebel Business Service after receiving a message from the TIBCO environment.
- **Ability to Invoke Siebel Workflow Processes** The adapter can invoke Siebel Workflow processes in real time. The adapter can invoke a process through the Siebel Workflow Process Manager after receiving a message from the TIBCO environment.
- **Support for Siebel Integration Objects** Siebel Integration Objects are supported on both the inbound and the outbound side. You can create schema for integration objects using TIBCO Designer.
- **Ability to Publish using Non-Siebel Business Component Functionality** You can use the Non-Siebel Business Component functionality, provided by Siebel, to send data before committing it to the Siebel Database.

- **Support for Universal Application Network** The adapter meets Universal Application Network (UAN) standards for the following adapter services:
  - — Subscription Service
  - — Request-Response Service
  - — Request-Response Invocation Service
- **Detection of Lost Siebel Data Connection** Detection of Siebel Data Connectivity failure is provided along with the ability to re-establish the connection and prevention of message loss.
- **Multithreading** The adapter supports a static number of threads. The number of threads is specified at the time of configuration. The number of connections to the application server equals the number of threads. With multiple threads, the adapter processes multiple messages concurrently.
- **Easy-to-use GUI** TIBCO Designer GUI is available for configuring and maintaining the adapter.
- **Support for TIBCO Rendezvous and JMS (Java Message Service)** Support for multiple message transports. TIBCO Rendezvous or TIBCO Enterprise Message Service can be used to transport messages to and from the adapter.

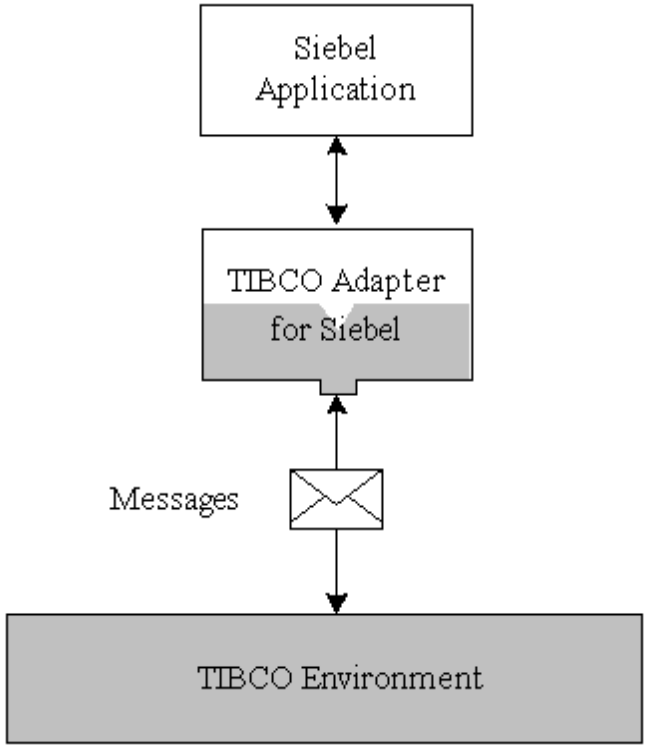
  TIBCO Rendezvous supports the following quality of services:
  - — Reliable (RV) — This ensures that each multicast or broadcast message is received as long as the physical network and packet recipients are working, and the loss of a message is detected.
  - — Certified-delivery (RVCM) — Ensures at least once delivery of messages. This guarantees that every certified message reaches its intended recipient in the order sent.
  - — Distributed Queue (RVCMQ) — This is designed to deliver a message to one-of-many Subscription services. It has incorporated the features of both Certified Messaging and Fault Tolerance.

  TIBCO Enterprise Message Service supports the following connection types:
  - — Queue — Queue messaging has one sender and one receiver per message. The receiver receives the message whether or not the receiver is active at the time the message is sent.
  - — Topic — In a Topic message system, senders address messages to a topic. Many senders can publish on a single topic, and a single sender can publish to many receivers. Receivers subscribe to topics, and receive messages on those topics.

How the Adapter Interfaces with the Siebel Application

The adapter is a bidirectional gateway between a Siebel application and the TIBCO environment. The distributed architecture of the adapter facilitates seamless integration into Siebel enterprise. The following figure is a high level view of how the adapter is integrated with Siebel in the TIBCO environment.

Figure 2 Logical Architecture for Integration With Siebel



The Siebel application interfaces used by the adapter are listed next.

- **Siebel VB and Siebel eScript** — The VB and eScripts are used in the adapter to add some validation logic while giving inputs to the Business Services.
- Java Data Bean Interface — Java Data Bean Interface provided by Siebel is used to get and set data into the Siebel application. The adapter uses Java Data Bean as one of the modes of communicating with the Siebel application.
- **Siebel Business Service** — Siebel provides Business Services for moving and converting the data formats between Siebel and other external applications. The adapter uses custom made Business Services for invoking the outbound

requests from Siebel. It also uses a Siebel provided Business Service, `EAI Siebel Adapter` to get and set integration objects into the Siebel application.

Multithreading

The adapter provides the flexibility to run concurrent events by running multiple threads for both inbound (Request-Response Service and Subscription Service) and outbound services (Publication and Request-Response Invocation Service). The threads created for outbound services are responsible for receiving the HTTP/HTTPS requests from Siebel and cannot be used for processing inbound sessions. Similarly, threads used for inbound services cannot be used for outbound service event execution. Both HTTP and HTTPS share the same threadpool.

The threads to process inbound events are configured at the session level and not at the service level. For example, if you configure two threads for a `RVCMSession`, it creates a total of two threads, for processing the events which are using this session. In a typical configuration, one session could be used by a Subscription Service as well as Request-Response service. In that case, the same thread can process both types of events.

Connection Pooling

The adapter has the facility of connection pooling. During connection pooling, there is a one-to-one mapping between the threads and the Siebel connection. This means, that the number of connections to Siebel is same as the number of threads. The thread uses the same connection with Siebel till it is terminated.

Consider a scenario where there are two Publication Service instances using RVCM, two Subscription Service instances using RVCMQ and two Subscription Service instances configured using TIBCO Rendezvous messaging format. The following default sessions are created in the adapter: `DefaultRVCMSession`, `DefaultRVCMQSession` and `DefaultRVSession`.

Let us assume the following:

- You have specified `HTTP threadCount` (outbound) as `2`, inbound thread count as `3` and `threadCount` for `DefaultRVCMQSession` as `2`.
- You have not specified any `threadCount` value for `DefaultRVCMSession` and `DefaultRVSession` in the `Multithreading` tab.

The adapter creates the connections based on the following calculation:

2 (HTTP Thread Count) + 2 (DefaultRVCMQSession) + 3 (default Inbound thread count for DefaultRVCMSession) + 3 (default Inbound thread count for DefaultRVSession) + 1 backup connection object (which is not shown in connection pool size displayed on the adapter console) = 11.

If there are no Subscription Services in a session, you should explicitly set the `dispatcherCount` of that session to `0` so that the adapter does not create connections (inbound) for that session. Otherwise, as shown in the above calculation, the adapter creates inbound connections for that session.

Relation between Max Jobs and Adapter Threads

The `Max Jobs` at the Siebel server level refers to the Maximum number of tasks available in the Siebel Object Manager. It should be configured in such a way that it is always greater than the `threadCount` (inbound + outbound) specified for the adapter.

Reconnection Mechanism

The adapter uses a reconnection mechanism to handle the network glitches or Siebel server timeout related issues. You can configure the numbers of times the adapter will attempt to connect to the Siebel server.

Reconnection mechanism starts whenever the adapter faces a Siebel application error while processing an event. It performs a dummy operation with the existing connection to check whether the connection is valid or not. If this connection check is successful, the adapter displays an error for that event with the proper error message. The adapter does not attempt to re-create the connection pool.

If the operation is unsuccessful, the adapter activates the reconnection mechanism. The adapter tries to reconnect to the Siebel server as many times as you have configured it to retry. If it exceeds the parameter `No of attempts before suspending services`, the adapter suspends the Subscription Services. Thereafter, the adapter will continue with the reconnection attempts till it crosses the parameter configured for `Number of attempts before stopping the adapter`. If the adapter is still not able to reconnect, it stops. If the adapter is able to reconnect, it drops all the existing connections from the pool and creates the complete connection pool.

While recreating the connection pool, the adapter exits if it fails to establish the first connection. But, if the adapter is able to create one or more connections, it does not exit, but waits for the events.

Adapter Services

In TIBCO terminology, an adapter offers 'services' to the host application and to the TIBCO environment. A service broadly encapsulates routing rules for messages handled by the service and also custom configuration information. The adapter provides the following adapter services:

- Publication Service
- Subscription Service
- Request-Response Service
- Request-Response Invocation Service

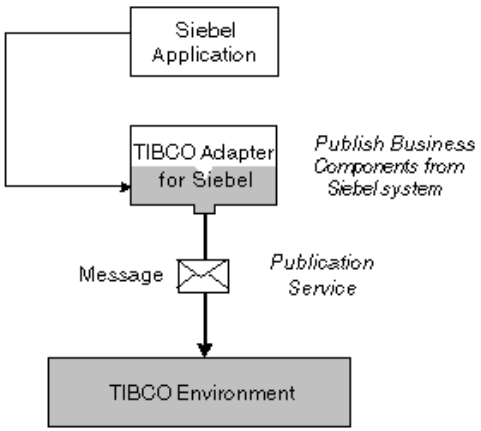
Communication parameters, Siebel connectivity parameters, and other parameters can be configured for these adapter services using TIBCO's configuration tool, TIBCO Designer.

The following sections describe how these adapter services interact with a Siebel environment to provide message connectivity.

Publication Service

The adapter receives data from a Siebel application, converts the data to a TIBCO message and sends the message to the TIBCO environment.

Figure 3 Typical Publication Service



Publication Service Features

The basic features of the Publication Service are as follows:

- The HTTP(S) Listener is built into the adapter and enables the adapter to directly interact with the Siebel application.
- Publishes using the TIBCO Rendezvous or JMS as the mode of transport.
- Queries Siebel Business Components and publishes them.
- Allows user defined message field names representing native Siebel field names.
- Publishes Siebel System fields including created, created by, updated and updated by fields.
- Publishes Siebel fields in Siebel formatted output forms.
- Publishes non-Siebel business components.
- Publishes Integration Objects

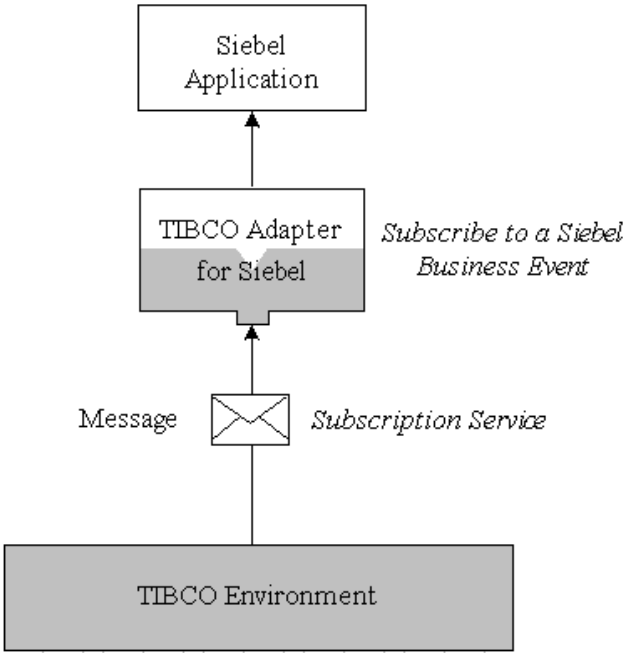
Example Scenario

The Publication Service can publish business components received from the Siebel system. For example, the Siebel system can be configured to send out records when an account is created in Siebel. For instance, when an account is created, Siebel can be configured to send (via HTTP(S)) a notification to the adapter, which will then publish it in the TIBCO environment.

Subscription Service

The adapter gets a message from the TIBCO environment and sends the message to the Siebel application.

Figure 4 Typical Subscription Service Flow



Subscription Service Features

The basic features of the Subscription Service are as follows:

- Inserts and updates Siebel Business Component objects
- Invokes Siebel Workflow using a subscribed event
- Subscribes to TIBCO messages using TIBCO Rendezvous or JMS as the mode of transport
- Supports interfacing with Siebel Workflow and Integration Objects.

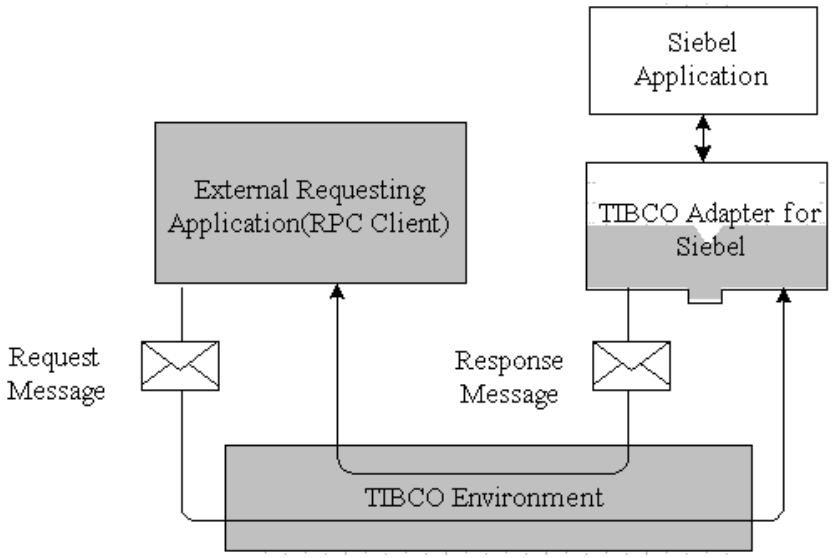
Example Scenario

An external system publishes a message with `Order Invoice` information. This message is then transformed to a TIBCO message by an intermediate application and then published to the adapter. The transformation step involves conversion of the message so that it adheres to a schema recognized by the adapter. The adapter subscribes to this message and updates the `Order Invoice` information into the Siebel system.

Request-Response Service

The adapter gets a request from the TIBCO environment and sends the request to the Siebel application. When a response is returned to the adapter from the Siebel application, the adapter sends the response to the TIBCO environment.

Figure 5 Typical Request-Response Service Flow



The adapter supports Request-Response scenarios by acting like an RPC (Remote Procedural Call) server. When the adapter receives a request, it takes the raw requested data, converts it into formatted Siebel schema, and sends it to Siebel using a designated Siebel interface.

Request-Response Service Features

The basic features of the Request-Response Service are as follows:

- Queries Siebel Business Components
- Inserts or updates Siebel Business Component
- Invokes Siebel workflow processes
- Inserts or updates integration objects
- Queries integration objects
- Allows scalable, high throughput and load balanced message processing via the TIBCO Rendezvous Distributed Queues (RVCMQ) Protocol

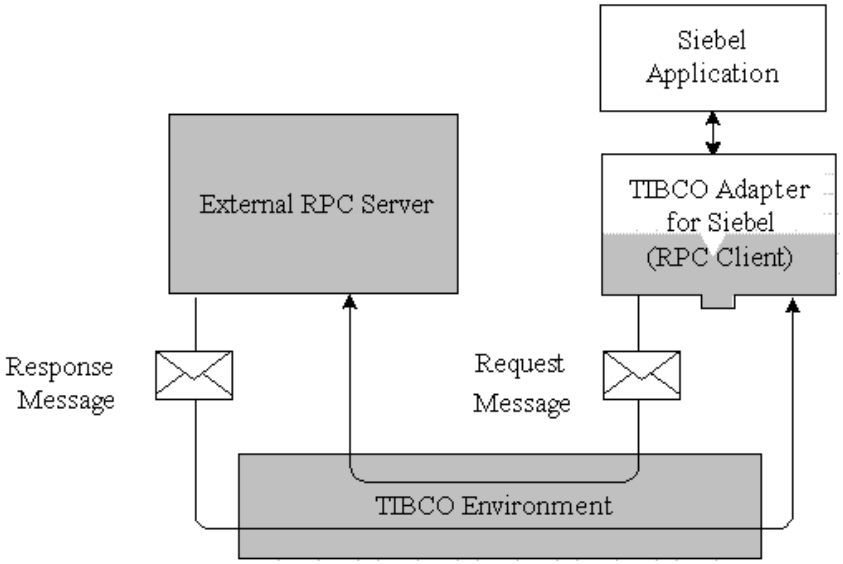
Example Scenario

An external system querying for customer information invokes an operation in the Siebel adapter configuration. The adapter passes on the request to the Siebel system, fetches customer information from the `Customer` Business Component and sends a reply to the external system.

Request-Response Invocation Service

The adapter gets a request from the Siebel application and sends the request through the TIBCO environment. When a response is returned from the TIBCO environment, the adapter sends the response back to the application.

Figure 6 Typical Request-Response Invocation Service Flow



Request-Response Invocation Service Features

The basic features of the Request-Response Invocation Service are as follows:

- Queries Siebel Business Component objects by invoking external TIBCO Request-Response Services.
- Can be invoked through the `SendReceive` method of the provided custom Siebel Business Service, `EAI TIBCO HTTP Agent` Business Service.
- Supports sending and receiving complete integration objects.

- Supports querying of integration objects and returning integration objects from external systems.

Example Scenario

The Siebel system may be configured to query for the `Customer` Business Component from an external system. The Siebel system invokes the adapter, which sends out a request and receives a reply from the external system. The adapter then sends the reply to the Siebel system.

Schema Support

The adapter uses schema to describe data received from or sent to the TIBCO environment.

Schemas are useful in a various situations, for example:

- When several developers collaborate on an adapter application, a specification document normally defines the data model for several related adapter applications. Inside the TIBCO framework, you can instead define a schema to serve as the data model and update it as needed.
- When the data model of the Siebel application changes, developers do not have to redesign the business process.
- Using Schemas in conjunction with the various mapping tools available in the TIBCO environment, you can transfer data across applications with incompatible data formats.

Schemas for the Siebel Application are configured based on the Siebel Business Layer Definition. TIBCO Designer connects to the Siebel Business Layer using the design-time connection and fetches the Siebel Schema definition. The adapter configuration is built using this definition.

Chapter 2 Installation

This chapter describes how to install The adapter on Microsoft Windows and UNIX systems.

This software may be available on multiple operating systems. However, not all operating system platforms for a specific software version are released at the same time. Please see Table 6 and Table 8 for the availability of this software version on a specific operating system platform.

Topics

Preparing your Environment for Installation

The most time-consuming part of an adapter installation is the collection of environment information and parameters. This section helps you complete this process. It provides a checklist of parameters you should obtain from various system administrators within your organization before installing the adapter. Note that obtaining a Siebel account can take some time depending on your corporate policies — so plan in advance!

Operating System Requirements

Obtain the following information from the administrator of the machine on which you plan to install the adapter:

you plan to install the adapter:

System name:
System IP address:

Username and password to access the system and run the adapter:

Username:
Password:

Do you have the required credentials to run the installer?

- On Microsoft Windows, administrator privileges are required to install.
- On UNIX systems, you can install as `root` or a regular user. See , Installer Account, page 40 for details.
- Note that the TIBCO Runtime Agent (TRA) must be installed prior to installing the adapter and the adapter installation always places files under the TIBCO `root` directory that was set when the TRA was installed.
- You must have a current and valid license for Siebel products which interoperate with TIBCO Adapter for Siebel installation.

There should be enough space on that disk or partition to install the adapter. The adapter needs space in your temp area and the directory where it is installed.

- See , Installation Registry, page 29 for details about temp folder space requirements on Microsoft Windows and UNIX systems.

- See Table 6 for Microsoft Windows installations.
- See Table 8 for Unix System installations.

You must have write permissions to these directories to install the adapter. In addition, on UNIX systems certain other permissions must be set to run the adapter. See , Permission Requirements, page 43 for details.

- To run the adapter you must have permissions to access the project (repository) where adapter configuration is stored.
- Depending on whether TIBCO Administrator is used to set access permissions, you may need an account identified by Administrator. See the *TIBCO Administrator User's Guide* for details.

Determine how the adapter installation files are to be transferred to this system. The installation files can be downloaded from download.tibco.com (if you have an account setup to download).

Before configuring the web server for the adapter, verify that the port number specified is not being used by any other application.

Siebel Requirements

Determine which Siebel versions are supported.

- For Microsoft Windows, see Table 7.
- For UNIX systems, see Table 9 and Table 10.

Test Connectivity

If you install the Siebel client, start it. Ensure you can connect to the Siebel server using the username and password that you were provided by your administrator.

Obtain the following information from your Siebel administrator. This is a list of Siebel server parameters that you will need to configure the adapter, along with the Siebel credentials that the adapter requires.

The parameters listed here use Siebel terminology. This information will be required while configuring the adapter.

Pre-Installation Worksheet

Use this form to capture the information you will need to collect before starting installing the TIBCO Adapter for Siebel.

Adapter Machine Information

Table 1 Adapter Machine Information

Field Name	Field Description	Field Value
Hostname (Example: adapter1.tibco.com)	Name of the machine on which the adapter is being installed.	
IP address (Example: 192.168.12.12)	IP address of the machine on which the adapter is being installed.	
User account (Example: administrator)	User account to be used for the installation.	
User domain (if Windows) (Example: ENGR2)	Network domain to which the user belongs.	
User password	User Password.	
Disk and path on which to install adapter (Example: /opt/tibco)		
How will the machine be accessed	[ ] directly [ ] terminal server [ ] xterm [ ] telnet. [ ] other: ……	
How will installation files be transferred to the machine	[ ] CD-drive [ ] internet download. [ ] FTP to machine [ ] network disk mounting.	

Server Information

Table 2 Server Information

Field Name	Field Description	Field Value
Siebel server: (Example: athps5)	Name of the machine on which the Siebel server is running.	
Enterprise server: (Example: Siebel)	Name of the Siebel Enterprise server specified at the time of installation.	
Siebel Gateway Server: (Example: sblw00)	Name of the machine on which the gateway server is running.	
Siebel Object Manager (Example: SCCObjMgr_enu)	Name of the Siebel client object manager.	
Siebel Server Version (Example: 7.5.2)	Version of the Siebel application installed.	

Siebel User Information

Obtain the following information for the account you will use to access the Siebel server.

Table 3 User Information

Field Name	Field Description	Field Value
Username: (Example: athps5)	Valid Siebel User ID to logon to Siebel.	
Password: (Example: Siebel)	Password to logon to Siebel.	

Siebel Client Software

Please specify where software for the Siebel client can be found within your organization:

[ ] It's already installed on adapter machine.

Location on disk: …….

[ ] Installation files are available via:

FTP (Server : …… User : …… Password: ……)

Disk mount (full path : ……..)

CD provided during install by (name/extension) : ……..

It is not mandatory to have a Siebel client for running the adapter.

Siebel Software Required before installing the Adapter

You will need to install the following Siebel components on the machine you intend to install the adapter:

- Siebel Java Data Bean jar files. (`SiebelJI_enu.jar` and `Siebel.jar`)

  In Siebel 6.2 and higher versions, Java Data Bean is a separate installable. In Siebel 7 and Siebel 7.8.x, Java Data Bean jars can be installed by selecting the **Java Bean** option during the custom installation of EAI Connectors. You can also get these jars with the Siebel server and Tools installation.

The Siebel components given below need not be installed on the machine you intend to install the adapter. But these components are required for running the adapter.

- Siebel Server

The Siebel Server must be on a AIX, HP-UX, Solaris or Microsoft Windows NT platform.

- Siebel Tools installation to import the custom Business Service, provided with the adapter installation, into the Siebel system.

All the Siebel applications installed should contain the latest patches.

Test Connectivity

The following steps can be executed to test connectivity of the Siebel server with the object manager, used by the adapter.

1. If you install the Siebel client, start it and ensure you can connect to the Siebel server using the username and password that you were provided by your administrator.

2. Open **Siebel Call Center**. Go to **Server Tools** and check if `Object Manager` is running.
3. Go to the `bin` directory of the Siebel server installation. Start the `srvrmgr` program and run the `list components` command. You should be able to view the object manager component with status set as `running`.

Installer Overview

The installer allows you to run in different modes. Each mode is supported on all platforms.

- GUI mode
- Console mode
- Silent mode

GUI Mode

In GUI mode, the installer presents panels that allow you to make choices about product selection, product location, and so on. You can invoke the installer by clicking on the executable.

Console Mode

Console mode allows you to run the installer from the command line or terminal window. This is useful if your machine does not have a GUI environment.

Silent Mode

Silent mode either installs using default settings or uses a response file that was saved during an earlier installation. Silent mode installs without prompting you for information.

- If no response file has been recorded earlier and you invoke the installer with the `-silent` argument, the default installation parameters are used.
- If a response file exists, and the installer is started with `-options` *<responseFileName>* as an argument, the installer uses the values specified by the user when the response file was generated.

Upgrading the Adapter

Software from TIBCO uses three numbers to indicate whether the release is major, minor or a patch. For example, 5.0.0 indicates a major release, 5.3.0 indicates a minor release and 5.2.1 indicates a patch release. The installer for a patch release performs an automatic upgrade. For example, the installer automatically upgrades TRA 5.0.0 to 5.0.1 by overwriting the contents of the 5.0 directory.

For a major and minor release, the installer prompts whether you wish to upgrade, and informs you if incompatible products are on your system. If you proceed, major or minor releases are installed under a new directory that is named using the major or minor release numbers.

For example, if you have installed the 5.0.0 release and are upgrading to a 5.3.0 minor release, it will be installed under the 5.3 directory. This allows both the 5.0 and 5.3 releases to coexist on the same machine.

If you are upgrading the adapter, or reinstalling a clean version of the software, you may uninstall the product first or allow the installer to perform the upgrade or reinstall.

Note that, if you are reinstalling over the same adapter version:

- You are not prompted to supply the installation location. The software is automatically reinstalled where the previous version was installed.
- If any files are currently locked (that is, in use), the installer marks the file for deletion in the install location. After installation, the installer prompts you to reboot your system. You must reboot before using the software.

Uninstalling the Adapter

If another product is dependent on the product you wish to uninstall, you are informed that you must uninstall the other product first

Microsoft Windows

Use one of the following options to uninstall the Adapter from the Microsoft Windows platform:

- Click **Start>Programs>TIBCO><*Adapter*>Uninstall**
- Navigate to the `_uninst` directory located in the Adapter installation directory and invoke the `Tibuninstall.exe` program.
- Click **Start>Programs>TIBCO>TIBCO Installation Manager**
- Use Add/Remove Programs from the Control Panel.

UNIX

Use one of the following options to uninstall the Adapter from the supported UNIX platform:

- Navigate to the `_uninst` directory located in the Adapter installation directory and invoke the `Tibuninstall.bin` program.

Run TIBCO Installation Manager which is located in the

<*install-path*>/tibco/TibcoInstallationManager.bin.

Installation Registry

The installer maintains an installation registry. The registry location depends on the platform. This section explains where the registry files are located. The files have vpd as a prefix, which stands for Vital Product Database. Note that the installer does not recognize TIBCO ActiveEnterprise 4.x products.

Do not edit, modify, rename, move, or remove any of the four registry vpd files.

Microsoft Windows Platforms

ActiveEnterprise 5.0 products maintain the installation registry in the `SystemDrive:\windows` folder. The following files represent the installation registry:

```
SystemDrive:\windows\vpd.properties
SystemDrive:\windows\vpd.properties.tibco.systemName
```

Installer Disk Space Requirements in Temporary Area

The entire package is extracted into a temp folder, typically `SystemDrive:\Temp` or `SystemDrive:\Documents and Settings\<user_name>\Local Settings\Temp`.

The installer requires 30 MB of free space in the temp directory.

UNIX Platforms

If installation is performed by a regular user (non-`root`), the installation registry is maintained in the following files in the user's home directory:

```
User_Home_Directory/vpd.properties
User_Home_Directory/vpd.properties.tibco.systemName
```

If installation is performed by the super-user (root), the installation registry is maintained as follows:

- On Solaris and HP-UX, in the root user's home directory (which is `/`) as two vpd files.
- On AIX, in the `/usr/lib/objrepos` directory as two vpd files.

Installer Disk Space Requirements in Temporary Area

The installer launcher first extracts a Java Virtual Machine (JVM) in a temporary directory and uses this JVM to launch itself. The size of the extracted JVM differs from platform to platform.

On UNIX platforms the following disk space is required in the temporary area:

- On Solaris, 30 MB of free disk space in `/var/tmp`.
- On HP-UX, 190 MB of free disk space in `/var/tmp`.
- On AIX, 30 MB of free disk space in `/tmp`.

If your system does not have sufficient free disk space in the above temporary area, you can still run the installer with a different temporary area by using the following option when starting the installer:

```
TIB_adsbl-simple_<version_num>_s4_58_java.bin -is:tempdir /new_tmp
```

where `/new_tmp` has sufficient free disk space.

Disk Space Requirement in User's Home Directory

On UNIX platforms when a regular (non-root) user installs a TIBCO 5.x product, the installation registry (two vpd files) is maintained in the user's home directory. As more products are installed, entries are added into these vpd files.

The user's home directory must at least have 500 KB of free disk space.

Installation History

The installer and uninstaller create a file called `TIBCOInstallationHistory.xml` in the same location where the installation registry is created. Each time an installation and uninstallation is performed, entries are appended to the file.

On Microsoft Windows:
`SystemDrive:\windows\TIBCOInstallationHistory.xml`.

On Unix: `Users_Home_Directory/TIBCOInstallationHistory.xml`.

The file `TIBCOInstallationHistory.xml` therefore contains the record of all installation and uninstallation activities of all products, features and components.

Do not edit, modify, rename, move, or remove the `TIBCOInstallationHistory.xml` file.

Adapter Components and Compatible Software

You can install different adapter components on different machines. For example, you can run the runtime adapter on one machine and install the design-time components on another machine. This allows you to configure an adapter on one machine and run it on another.

Adapter Components

Table 4 describes the adapter components on the adapter installation package.

Table 4 TIBCO Adapter Components

Component	
Run-time adapter	This process does the actual work of passing and converting data to and from Siebel. Parameters of data exchanges are stored in projects created using the adapter palette.
Adapter palette	Adapter-specific GUI that is loaded in TIBCO Designer (see next section for details) at configuration time.

Required and Optional TIBCO Products

Depending on the tasks you wish to perform, you must install one or more other TIBCO products. The next table describes required and optional products and their purpose. Refer to *Readme.txt* for version numbers.

Table 5 Required and Optional TIBCO Products

Component	Purpose
TIBCO Runtime Agent	Required. TIBCO Runtime Agent supplies a number of TIBCO and third-party libraries used by the adapter and other TIBCO products both at design-time and runtime. This includes RVD libraries, SDK libraries etc. For example, `maverick50.dll`. You must install TIBCO Runtime Agent on each machine that hosts an adapter. TIBCO Runtime Agent must be installed before you install the adapter.

Table 5 Required and Optional TIBCO Products

Component	Purpose
TIBCO Administrator	Required. TIBCO Administrator includes the following modules: • User Management. Management of authentication, roles and users, that is, connecting roles (groups) and users to access control lists (ACLs). This includes security for server-based projects at design-time and for deployed applications at runtime. • Resource Management. Monitoring of machines and of all running applications in a TIBCO administration domain. Alerts can be created, for example, to notify an administrator if the number of processes or disk usage exceed a certain number. • Application Management. Uploading of Enterprise Archive (EAR) files, creation, configuration, deployment, and monitoring of applications. This console is also used to start and stop applications. TIBCO Administrator is available as a separate installation and can be installed after installing the adapter.
TIBCO BusinessWorks	Optional. TIBCO BusinessWorks is a scalable, extensible, and easy to use integration platform that allows you to develop integration projects. TIBCO Adapters are typically part of integration projects created using BusinessWorks. TIBCO BusinessWorks is available as a separate installation and can be installed after installing the adapter.

Installation on Microsoft Windows Systems

Before starting the installation procedure, review the topics in this section to determine that your system meets the basic requirements and that you have the prerequisite software installed.

The following is a list of prerequisites for installing the adapter on Microsoft Windows systems, See , Installer Disk Space Requirements in Temporary Area, page 29 for additional disk space requirements.

The following table also lists the platform-specific installation packages, where <version_num> is the Adapter release number. For example, the installation package name for TIBCO Adapter for Siebel 5.3.0 on the Microsoft Windows 2000 platform is `TIB_adsbl-simple_5.3.0_w32.exe`.

Table 6 Supported Platforms, Package Names, and Disk Space for Microsoft Windows

Platform	Package Names	Hardware Platform	Disk Space (MB)
Microsoft Windows XP	`TIB_adsbl-simple_<version_num>_w32.exe`	x86	32 MB
Microsoft Windows 2000	`TIB_adsbl-simple_<version_num>_w32.exe`	x86	32 MB
Microsoft Windows 2003	`TIB_adsbl-simple_<version_num>_w32.exe`	x86	32 MB

Supported Applications

Before proceeding to adapter installation, ensure you can connect to the target application using the Siebel client.

Table 7 Supported Siebel Versions on Microsoft Windows

Siebel Version	Windows 2003	Windows 2000	Windows XP
Siebel 7.8.3	YES	YES	YES
Siebel 7.8.2.1	YES	YES	YES
Siebel 7.8.2	YES	YES	YES
Siebel 7.7.1	YES	YES	YES

Table 7 Supported Siebel Versions on Microsoft Windows

Siebel Version	Windows 2003	Windows 2000	Windows XP
Siebel 7.7.2	YES	YES	YES
Siebel 7.5.3	YES	YES	YES
Siebel 7.5.2	YES	YES	YES
Siebel 7.0.4	NO	YES	NO
Siebel 6.2.1	NO	YES	NO

If you are using Siebel 6.2, only releases from 6.2.1.110 onwards are supported on Windows and Solaris 8.

TIBCO Runtime Agent Must be Installed Before the Adapter

Before you can install the adapter, you must install the TIBCO Runtime Agent. If you use the Typical installation, the installer places all libraries and other products required by the adapter into the TIBCO HOME directory.

During installation, the adapter installer checks for the availability of all required products in the system. If any of these are not available, the installer does not proceed with the installation.

Installer Account

You must have administrator privileges for the machine on which the adapter is installed.

If you do not have administrator privileges, the installer will exit. You must then log out of the system and log in as a user with the required privileges, or request your system administrator to assign the privileges to your account.

Installing from Network Drive

If you intend to install the product on a network drive, you must ensure that the account used for installation has permission to access the network drive.

Installing on Microsoft Windows 2000 and 2003 Terminal Server

There are two modes in Microsoft Windows Terminal Server: *Execute* and *Install*. Users are logged on by default in Execute mode, which allows them to run applications. To install an adapter so that everyone can use it, log on as administrator in Install mode. When the adapter is installed in the Install mode, the installation registry is maintained in *SystemDrive*`:\windows\`.

Microsoft Windows Terminal Server must be running in remote administration mode, not in the application sharing mode. The adapter is not supported if it is installed on a machine that is using Microsoft Windows Terminal Server in the application sharing mode.

The best way to install the adapter on Microsoft Windows Terminal Server is to use the Add/Remove Programs control panel applet. This automatically sets your mode to Install during the installation and then back to Execute afterwards. Alternatively, you can manually change your mode to Install before starting the installation by typing the following at a command prompt:

```
C:\> change user /install
```

Change back to Execute mode after installation is complete by typing:

```
C:\> change user /execute
```

To check your current mode, type the following:

```
C:\> change user /query
```

Installing the Adapter on Microsoft Windows

You can either download the adapter package or install the package from a CD. The installer prompts you to accept the license agreement. Then you can choose to perform a typical install or custom install.

- A typical install has minimal prompts and installs standard components in default locations.
- A custom install prompts you to choose which components of the product suite to install and installs only those components.

The installer checks your system for the installation home directory that was established when TIBCO Runtime Agent was installed. The adapter is installed under the installation home directory.

Use one of the following modes to install the software.

Install Using GUI Mode

GUI Mode allows you to input values in panels. Double-click the following executable:

```
TIB_adsbl-simple_<version_num>_w32.exe
```

Install Using Console Mode

Console mode allows you to install the software from a command line. The installer will prompt you for values. Type the following at the command prompt:

```
TIB_adsbl-simple_<version_num>_w32.exe -is:javaconsole -console
```

When running in console mode you can move through the installation process as described next:

```
Enter Key or 1 = Moves forward in the installer
2 = Goes back to previous screen
3 = Cancels the Wizard and exits the installation or uninstallation
4 = Redisplays the current screen
```

Install Using Silent Mode

Silent mode allows you to install the software without prompts. Type the following at the command prompt:

```
TIB_adsbl-simple_<version_num>_w32.exe -silent
```

Install Using a Response File

You can use a previously generated response file for installation. For non-silent modes, the response file determine the defaults that are presented. For silent mode, the response file determines what will be installed.

To install using a response file, type the following at the command prompt:

```
TIB_adsbl-simple_<version_num>_w32.exe -options
                                    C:\directory\<responseFileName>
```

Generate a Template File

You can generate a template file without installing the adapter. The template file is similar to a response file, but the values are not filled in. You can edit the template file to generate a response file.

To generate a template file, type the following at the command prompt:

```
TIB_adsbl-simple_<version_num>_w32.exe -options-template
      C:\directory\< templateFile>
```

Combining Options

You can combine the different available options. For example, to install in silent mode using a response file, use:

```
TIB_adsbl-simple_<version_num>_w32.exe -silent -options
<responseFileName>
```

To install using Console mode and generate a response file, use:

```
TIB_adsbl-simple_<version_num>_w32.exe -is:javaconsole -console
-options-record <responseFileName>
```

Installation on UNIX Systems

Your operating system must meet the minimum patch requirements listed next. See , Installer Disk Space Requirements in Temporary Area, page 30 for additional disk space requirements.

The following table also lists the platform-specific installation packages, where <version_num> is the Adapter release number. For example, the installation package name for TIBCO Adapter for Siebel 5.3.0 on the HP-UX 11 platform is `TIB_adsbl-simple_5.3.0_h7_110_java.bin`

Table 8 Supported Platforms, Package names, and Disk Space for UNIX systems

Platform	Package Names	Hardware Platform	Disk Space (MB)
Solaris 8	`TIB_adsbl-simple_<version_num>_s4_58_java.bin`	SPARC	60 MB
Solaris 9	`TIB_adsbl-simple_<version_num>_s4_58_java.bin`	SPARC	60 MB
Solaris 10	`TIB_adsbl-simple_<version_num>_s4_58_java.bin`	SPARC	60 MB
HP-UX 11i	`TIB_adsbl-simple_<version_num>_h7_110_java.bin`	PA-RISC	116 MB
AIX 5.2	`TIB_adsbl-simple_<version_num>_rs_51_java.bin`	POWER	60 MB
AIX 5.3	`TIB_adsbl-simple_<version_num>_rs_51_java.bin`	POWER	60 MB

Supported Applications

Before proceeding to adapter installation, ensure you can connect to the target application using the Siebel client. The adapter works with the following:

Table 9 Supported Siebel Versions on Solaris

Siebel Version	Solaris 8		Solaris 9		Solaris 10
	32-bit	64-bit	32-bit	64-bit	
Siebel 7.8.3	YES	YES	YES	YES	YES
Siebel 7.8.2.1	YES	YES	YES	YES	YES

Table 9 Supported Siebel Versions on Solaris

Siebel Version	Solaris 8		Solaris 9		Solaris 10
	32-bit	64-bit	32-bit	64-bit	
Siebel 7.8.2	YES	YES	YES	YES	NO
Siebel 7.7.1	YES	YES	YES	YES	NO
Siebel 7.7.2	YES	YES	YES	YES	NO
Siebel 7.5.3	YES	YES	NO	NO	NO
Siebel 7.5.2	YES	YES	NO	NO	NO
Siebel 7.0.4	YES	YES	NO	NO	NO
Siebel 6.2.1	YES	NO	NO	NO	NO

Table 10 Supported Siebel Versions on HP-UX and AIX

Siebel Version	HP-UX 11i	AIX 5.2	AIX 5.3
Siebel 7.8.3	YES	YES	YES
Siebel 7.8.2.1	YES	YES	YES
Siebel 7.8.2	YES	YES	NO
Siebel 7.7.1	YES	YES	NO
Siebel 7.7.2	YES	YES	NO
Siebel 7.5.3	YES	YES	NO
Siebel 7.5.2	YES	NO	NO
Siebel 7.0.4	NO	NO	NO
Siebel 6.2.1	NO	NO	NO

TIBCO Runtime Agent Must be Installed Before the Adapter

If you are using Siebel 6.2, only releases from 6.2.1.110 onwards are supported.
If you are using Siebel 6.3, only releases from 6.3.0.310 onwards are supported.

Before you can install the adapter, you must install TRA. If you choose the Typical installation mode for TRA, the installer places all libraries and other products required by the adapter into the *TIBCO HOME* directory.

During installation, the adapter installer checks for the availability of all required products in the system. If any of these are not available, the installer does not proceed with the installation.

Installer Account

TIBCO 5.x products can be installed by a regular (non-root) user and super-user (root). Different users can install the same product at different locations.

Product dependencies at install time are resolved at the user level through the installation registry maintained in the user's home directory. See , Installation Registry, page 29 for more information.

Microsoft Windows Environment

A window environment such as CDE (i.e. X Windows) is required to run the installer in GUI mode. It is not required for a console mode installation.

Installing the Adapter on UNIX

After running the software and accepting the license agreement, you can choose to perform a typical install or custom install.

- A typical install has minimal prompts and installs standard components in default locations.
- A custom install prompts you to choose which component of the product is to be installed and installs only those components.

The installer checks your system for the installation home directory that was established when TIBCO Runtime Agent was installed. The adapter is installed under the installation home directory.

Use one of the following modes to install the software. The examples assume you are installing the adapter on Solaris 8.

Install Using GUI Mode

GUI Mode allows you to input values in panels. Type the following in a terminal window and press **Enter**:

```
% ./TIB_adsbl-simple_<version_num>_s4_58_java.bin
```

Install Using Console Mode

Console mode allows you to install the software from a command line. The installer will prompt you for values. Type the following in a terminal window:

```
% ./TIB_adsbl-simple_<version_num>_s4_58_java.bin -is:javaconsole
-console
```

When running in console mode you can move through the installation process as described next:

```
Enter Key or 1 = Moves forward in the installer.
2 = Goes back to previous screen.
3 = Cancels the Wizard and exits the installation or
uninstallation.
4 = Redisplays the current screen.
```

Install Using Silent Mode with Default Values

Silent mode allows you to install the software without prompts using default values. Type the following in a terminal window:

```
% ./TIB_adsbl-simple_<version_num>_s4_58_java.bin -silent
```

Install and Generate a Response File

You can generate a response file during any installation of the product and can use the same file in future installations. For all installation modes using response file, the options in the file determines what will be installed.

To install and generate a response file, type the following at the command prompt:

```
% ./TIB_adsbl-simple_<version_num>_s4_58_java.bin -options-record
      /dir/<responseFile>
```

Install Using a Response File

You can use a previously generated response file for installation. For non-silent modes, the response file determine the defaults that are presented. For silent mode, the response file determines what will be installed.

To install using a response file, type the following at the command prompt:

```
% ./TIB_adsbl-simple_<version_num>_s4_58_java.bin -options
/dir/<responseFileName>
```

Combining Options

You can combine the different available options. For example, to install in silent mode using a response file, use:

```
% ./TIB_adsbl-simple_<version_num>_s4_58_java.bin -silent -options
<responseFileName>
```

To install using Console mode and generate a response file, use:

```
% ./TIB_adsbl-simple_<version_num>_s4_58_java.bin -is:javaconsole
-console -options-record <responseFileName>
```

Post Installation

Permission Requirements

All adapter users must have read, write, and execute permissions for the following directories:

```
<ADAPTER_HOME>/ledger
$TIBCO_HOME/adapter/adsbl/<version_num>/bin
$TIBCO_HOME/adapter/adsbl/<version_num>/logs
$TIBCO_HOME/tra/<version_num>/logs
$TIBCO_HOME/logs
```

For example, if the adapter has been installed in `/opt/tibco`, the user who installed the adapter can make these directories writable for all other users by executing the following commands:

```
% chmod a+w /opt/tibco/adapter/adsbl/<version_num>/bin/
% chmod a+w /opt/tibco/adapter/adsbl/<version_num>/bin/logs
% chmod a+w /opt/tibco/tra/<version_num>/logs
```

Prerequisites to be met before you start configuring the adapter

- Get the encoding used in Siebel deployment from the Siebel application administrator. This encoding will be used later in the adapter configuration.
- Get a free port number on the adapter machine for listening to the outbound http requests.
- Verify that the Object Manager is running. See , Test Connectivity, page 24 for details.

  Verify the read and write access for any Business Object to be used by the adapter.

Installer FAQs and Troubleshooting

This section lists some of the frequently asked questions, common errors along with their causes and solutions.

Frequently Asked Questions

Where is the installation log file located?

Install and uninstall log files are created in the `TIBCO_HOME\log` directory.

What should I do, if JVM crashes when I run the installer?

The installer first extracts this bundled JVM into a temporary area and then uses it to launch itself. If for some reason, the JVM crashes, you could still run the installer using another JVM, preferably JVM 1.3.1 or higher. The syntax is:

```
TIB_adsbl-simple_<version_num>_w32_java.exe -is:javahome
C:\j2sdk1.4.0
TIB_adsbl-simple_<version_num>_s4_58_java.bin -is:javahome
/opt/jre140
```

The `javahome` directory must contain `bin/java.exe` or `bin/java`.

The installer will use the externally supplied JRE to launch itself.

Will 5.3 installer recognize a 3.x or 4.x installation?

TIBCO products follow a three-digit release numbering scheme:

Major.Minor.Patch

Product releases that differ in either Major or Minor numbers will be a separate installation, and will not recognize the old installation. In this case, 5.2 is a minor release and hence will not recognize either 3.x or 4.x product installations.

Why and how should I set the DISPLAY variable on UNIX platforms for GUI mode?

The installer in GUI mode on UNIX must open an additional window, generally for graphics. It uses the DISPLAY environment variable to tell it on what machine to open the window. If the environment variable is not set, the installer will either wait or abort after displaying:

```
InstallShield Wizard
Initializing InstallShield Wizard...
```

```
Preparing Java(tm) Virtual Machine...
.....................................
.....................................
........
```

The DISPLAY variable must be set to the IP address or name of the machine (on which the installer graphics window are to be displayed), followed by a screen address, which can be `:0.0`. For example:

```
# Bourne shell
DISPLAY=<ip_address>:0.0; export DISPLAY

# Korn shell
export DISPLAY=<ip_address>:0.0

# C-shell
setenv DISPLAY <ip_address>:0.0
```

For example, consider a scenario where you need to install the adapter on a remote HP-UX machine (named `itaska`). Because you have a Solaris 6 machine (named `alaska`) that has a video card and monitor installed, you can run an X-window application on it. So you decide to telnet to `itaska` from `alaska`.

When you telnet to `itaska`, you will not get access to `itaska`'s monitor and will be unable to display an X-window application. That is why you must set the `DISPLAY` variable, which instructs the X-server to redirect all Microsoft Windows to the machine set in the variable. Before doing so, the machine (specified in the `DISPLAY` variable) must give permissions to share its monitor.

```
alaska> xhost + # give permission for all to its share monitor
alaska> telnet itaska
Welcome to HPUX itaska 11.00
User:
Password:
itaska> export DISPLAY=alaska:0.0  # set display on alaska
itaska> tar -xvf TIB_tra-suite_5.1.3_h7_11.tar
```

What is uninst2 directory?

If the original uninstall directory is in use at uninstall time, it cannot be removed by the installer program. The installer then creates a second uninstall directory for the second installation. To remove the second installation, you must invoke the uninstall program from the second uninstall directory. The original uninstall directory can also be manually removed, if empty.

Running Out of Disk Space

The installer calculates the disk space required in product home location, for the selected components. The calculation is done before the actual installation (copying of files to system) begins. The installer will not proceed if sufficient free disk space is not available in product home location.

However, if disk space is consumed by another process while the installer is copying the files, and if the required disk space is thereby reduced, the installer may fail and will then give a failure message.

Resolution

While performing installation, avoid running other processes that consume disk space in product home location.

Installation Error on Pentium 4 Systems

The installer uses JRE 1.1.8. There is a known issue with JVM 1.1.8 on dual Intel Pentium 4 processor (or multi-processor) systems using Microsoft Windows operating systems which can cause the jvm 1.1.8 application (in this case the installer) to hang or crash.

This is not an issue for any other type of dual or multi-processor systems, only Pentium 4 systems on Microsoft Windows. Pentium 3 systems, etc. are OK.

Configuring TIBCO Hawk

Error

TIBCO Runtime Agent includes the TIBCO Hawk Agent only. If you install the full TIBCO Hawk package after installing TIBCO Runtime Agent and do not have a Java Runtime Environment (other then the TIBCO JRE) installed, the TIBCO Hawk Configuration tool is unable to determine the Java home location and the JVM executable. The TIBCO Hawk services will not start correctly and you will be unable to start the TIBCO Hawk Display.

Resolution

1. Start the TIBCO Hawk Configuration tool. For example, on Microsoft Windows:

   Start>TIBCO>TIBCO Hawk>Hawk Configuration

2. Under the `General` tab, click **Advanced**.

3. In the `Java Home Directory` field, provide the path to Java. For example:

   C:\tibco\jre\1.4.2

4. In the `JVM Executable` field, provide the JVM executable. For example:

   java.exe

The services will start properly and the TIBCO Hawk Display will run.

Cannot Install the Adapter

On HP-UX and AIX platforms, even though the correct version of TIBCO Runtime Agent version is already installed on the system, installation of an adapter that depends on TIBCO Runtime Agent may fail in the dependency resolution.

The TIBCO product installer maintains the registry information in the `vpd.properties.tibco.`*systemName* file. The value for *systemName* is determined by `InetAddress.getLocalHost().getHostName()`. However, the method `getHostName()`, returns different values based on the JRE versions used. For example, on AIX, JRE 1.3.1 returns only *systemName*, whereas jre 1.4.2 returns *systemName.domainName*. Because of this, the installer is not able to load the correct registry file.

Resolution

On UNIX platforms, the installer registry file `vpd.properties.tibco.`*systemName* is located in the user's home directory.

Case 1: If the `vpd.properties.tibco.`*systemName* file exists:

```
$ cd user's_home_directory
$ ln -s vpd.properties.tibco.systemName
                    vpd.properties.tibco.systemName.domainName
```

For example:

```
$ cd ~
$ ln -s vpd.properties.tibco.upside
vpd.properties.tibco.upside.tibco.com
```

where upside is *systemName*, and tibco.com is *domainName*

Case 2: If the `vpd.properties.tibco.`*systemName.domainName* file exists:

```
$ cd user's_home_directory
$ ln -s vpd.properties.tibco.systemName.domainName
vpd.properties.tibco.systemName
```

For example:

```
$ cd ~
```

```
$ ln -s vpd.properties.tibco.upside.tibco.com
vpd.properties.tibco.upside
```

where upside is *systemName*, and tibco.com is *domainName.*

Chapter 3 Getting Started

This chapter provides a short exercise that shows you how to configure TIBCO Adapter for Siebel with a Publication Service. Details for each step described here are provided later in the manual.

Topics

Overview

The adapter is integrated with various components on Siebel, so there are certain prerequisites that must be met before you can configure basic settings for the adapter. The prerequisites are listed under section, Prerequisites on page 52 and the configuration steps are listed under section, Configuring the Adapter on page 55.

The scenario presented in this chapter is a simple one; intended to demonstrate the application of the adapter in a Siebel environment. It gives a step-by-step solution using a sample scenario, where an adapter can be configured using TIBCO Designer.

You should be familiar with dragging and dropping icons and saving projects using TIBCO Designer. If you are not familiar with these topics, read the documentation for TIBCO Designer. It can be accessed from the **Help>Designer Help** menu option within the TIBCO Designer.

Sending Account Information to an External Application

This scenario presents a relatively simple situation and shows how to implement a solution for it using the adapter.

Scenario

A database manufacturing company has Account information for various customers. The Contact and Address information are maintained along with the Account. A field agent keeps track of these Accounts and updates them on a periodic basis. Any information that is getting updated to the Account is sent to an external application using the TIBCO Siebel adapter.To successfully interface with the external application, the adapter must send the Account information from the Siebel application to the external database without losing or corrupting any data.

Solution

Configure a Publication Service in the adapter to publish Account information from the Siebel application to the other external application's database.

Procedure

The procedure to implement the solution involves using TIBCO Designer to configure a Publication Service, starting the adapter and sending a publication request to the adapter by invoking the custom Business Service, `EAI TIBCO HTTP Agent` from Siebel.

Prerequisites

Before starting the procedure to implement the solution for a scenario, complete the prerequisites described in this section.

- Install all required software (see Installation, page 19).
- Install the adapter software (see Installation Registry, page 29).
- If your installation is standalone, verify that the repository server is up and running (see the TIBCO Designer Help menu: **Help >Help For >Repository**).
- Import the Custom Siebel Business Service, `EAI TIBCO HTTP Agent` into your Siebel System using Siebel Tools. For example, the file name and location for Siebel 6.2.x and higher systems are as follows:

```
<Adapter_Home>\<version_num>\siebel\
TIBSiebelAdapterHTTPAgentBusinessService_escript.sif or
TIBSiebelAdapterHTTPAgentBusinessService_svb.sif.
```

  See Chapter 8, Using the EAI TIBCO HTTP Agent Business Service, page 193 for details.

Information You Need

Before configuring the adapter, verify the following:

- You have Siebel install path and valid credentials (username and password) to access the Siebel system.
- The list of Business Object or Component, Integration Object or Component, and Siebel Workflow to be used.
- The Siebel server is up and running.
- For HTTPS support, you need a valid certificate keystore path, keystore password, and key password.

Create a Project

The TIBCO Designer GUI is used to configure adapter instances. When starting Designer, you must create or select a project. A project contains the configuration files that define options used by a run-time adapter.

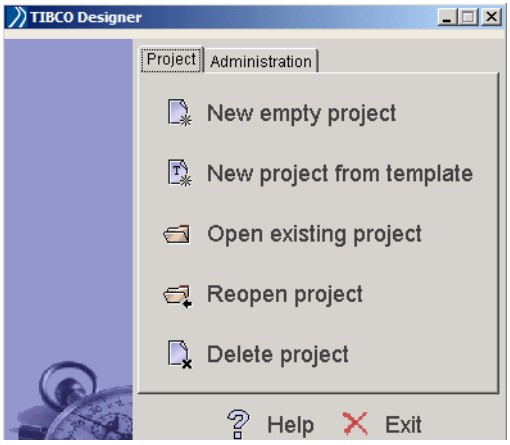
To create a project:

1. Start TIBCO Designer by executing the following command, depending on your operating system.

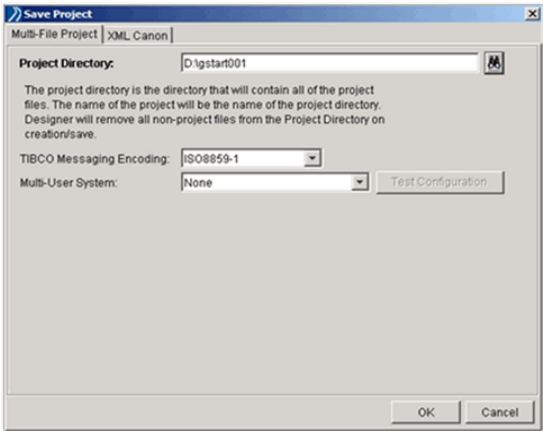
   On Microsoft Windows, select **Start>Programs>TIBCO>TIBCO Designer 5.5>Designer 5.5**

   On UNIX, from a command window, change the directory to the *<TIBCO Designer Home>*`/bin` directory and enter **./designer**

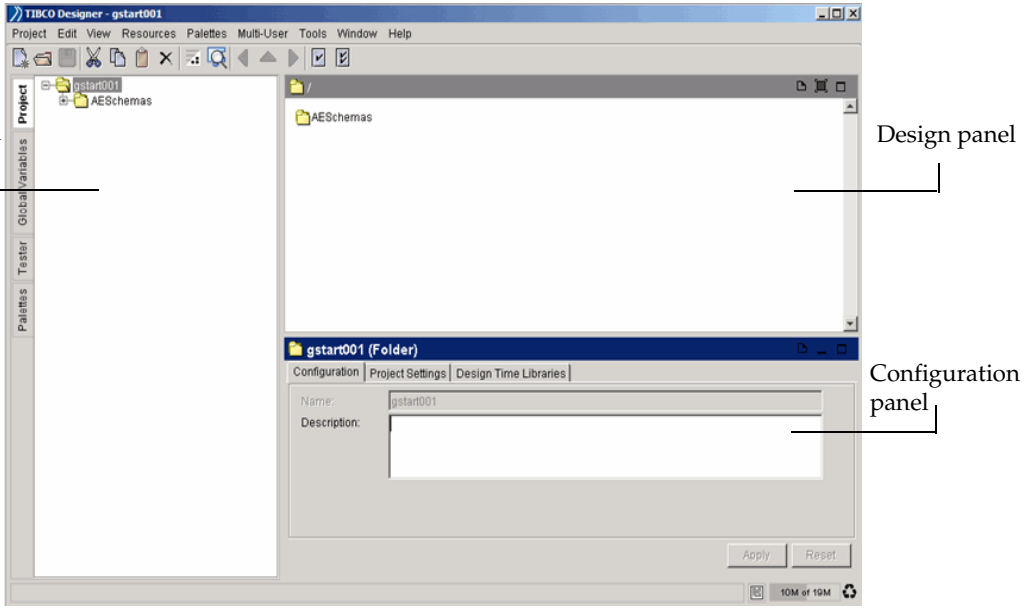
2. In the TIBCO Designer dialog, click **New empty project**.



3. Click  in the window that is displayed. Select the location where you intend to save the project, and specify a name for the project.



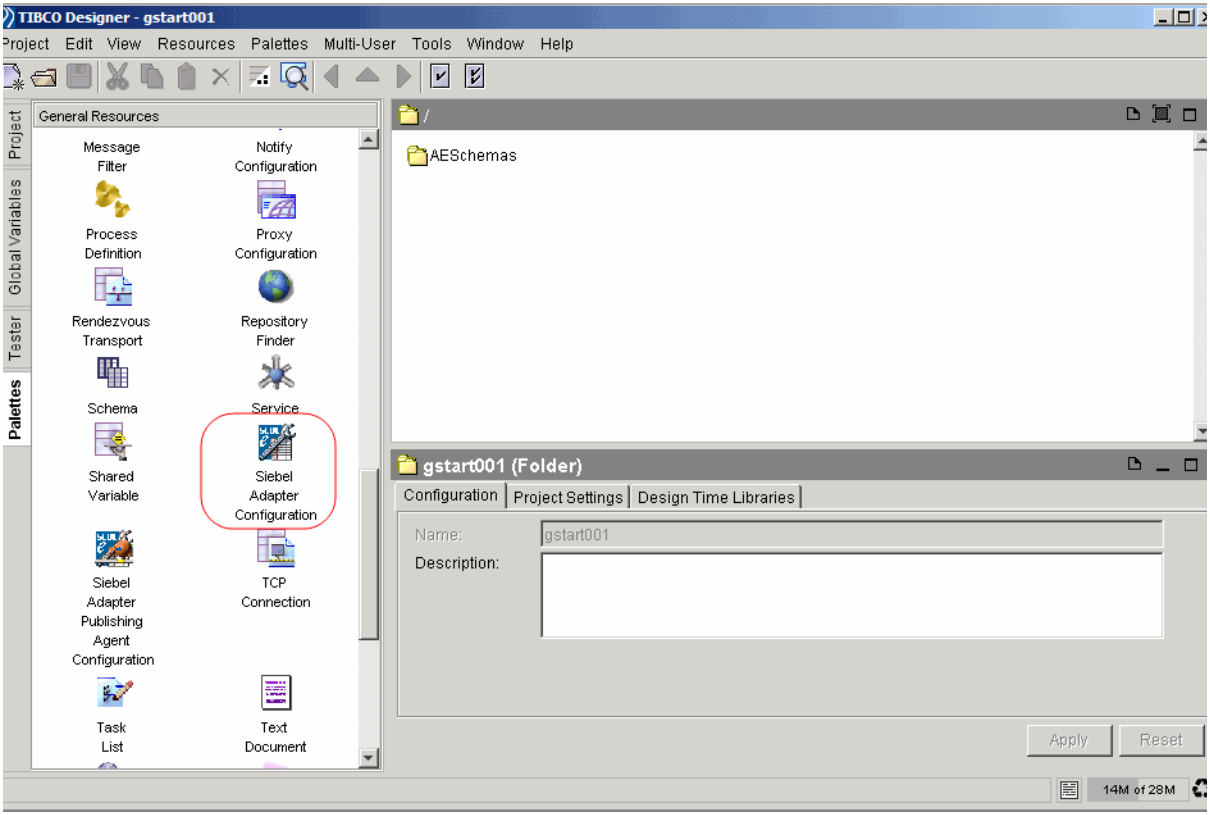
The next diagram shows the TIBCO Designer GUI with the `gstart001` project defined.



Configuring the Adapter

A typical configuration session entails the following steps:

1. Start TIBCO Designer and open a new project, as detailed in the previous section.
2. Drag and drop the **SiebelAdapterConfiguration** icon from the palette panel into the design panel.

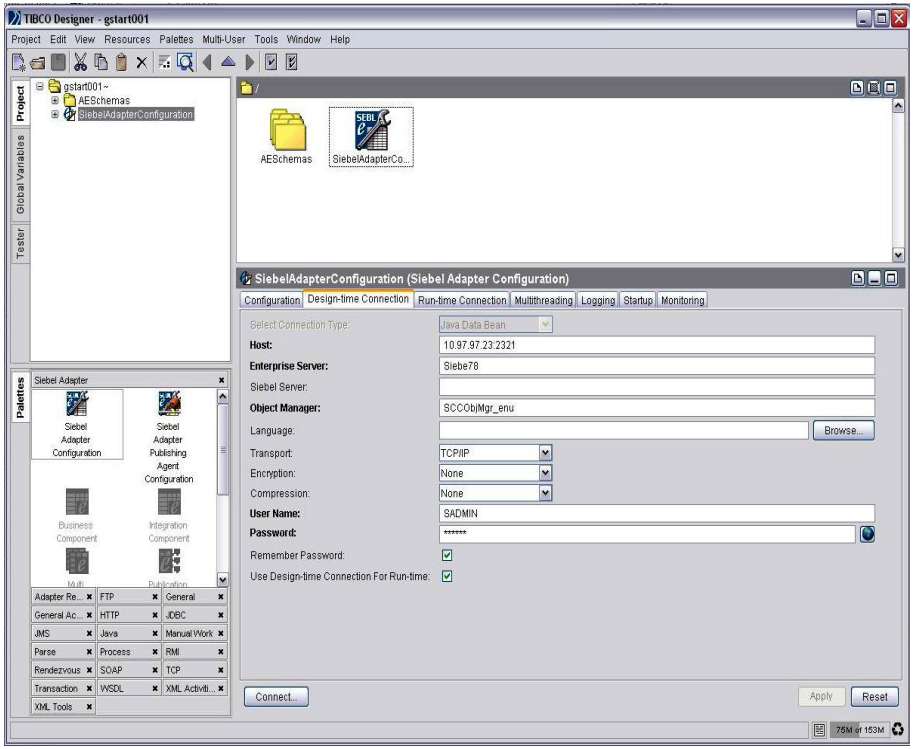


3. In the `Configuration` tab, enter `SiebelExercise` in the `Name` field and click **Apply**.
4. In the `Design-time Connection` tab, define the Design-time Connection parameters. Specify access information for accessing the Siebel system. For a

successful connection, you must enter valid values in the following mandatory fields:

- `Host`
- `Enterprise Server`
- `Object Manager`
- `User Name`
- `Password`

5. Click **Connect**. Once the connection is established, all fields but for `Use Design-time Connection for Run-time` is grayed out.



The screenshot showing the `Siebel Adapter Configuration` tab is for Siebel 7.7 and 7.8. For these versions, specify the port number to be 2321 in the `Host` field and leave the `Siebel Server` field blank.

6. Click `Runtime Connection` to set the run-time connection parameters. For details on run-time connection parameters refer to the section, Run-time Connection Tab, page 75.
7. Click **Apply**.

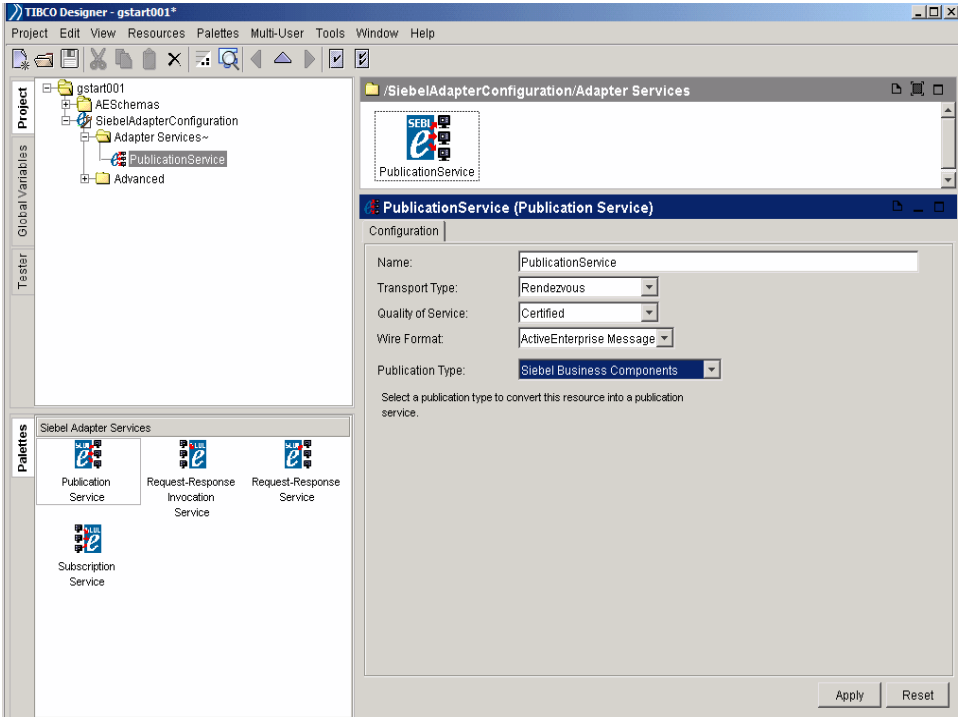
8. Save the project.
9. Configure a Publication Service as described in the following section , Configure a Publication Service, on page 58.

From this release, the adapter palette supports auto-reconnection, as a result of which you need to enter the connection parameters only once. The connection information will be used whenever the adapter has to reconnect to the Siebel application. However, the auto-reconnection feature will work only when the `Remember Password` option in the `Design-time Connection` tab is checked.

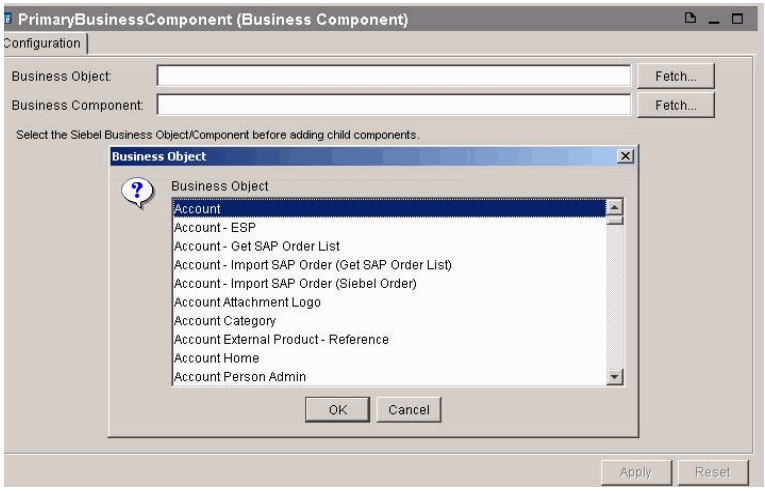
Configure a Publication Service

To configure the adapter to publish account information, add a Publication Service to the adapter configuration created in the previous section.

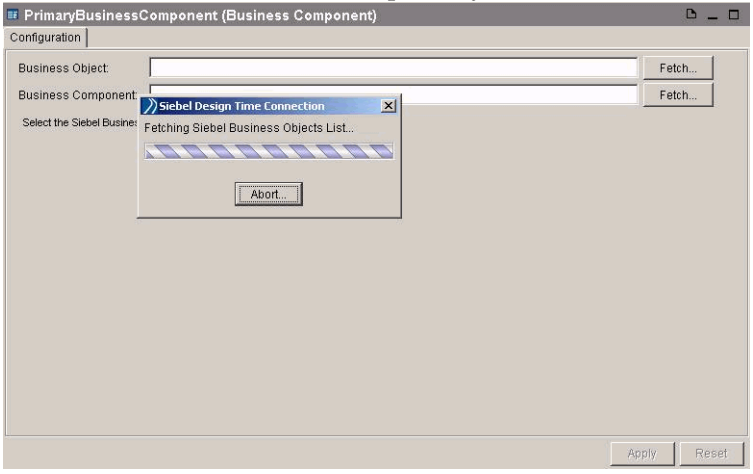
1. Select **Adapter Services** from the project tree, for your adapter configuration. Drag a **Publication Service** icon from the palette panel to the design panel.
2. In the `Configuration` tab, select **Siebel Business Components** as the `Publication Type` and click **Apply**.



3. In the **Primary Business Component**, click **Fetch** at the `Business Object` field to access a list of available Siebel Business Objects. A pop-up window is displayed, select `Account` and click **OK**.

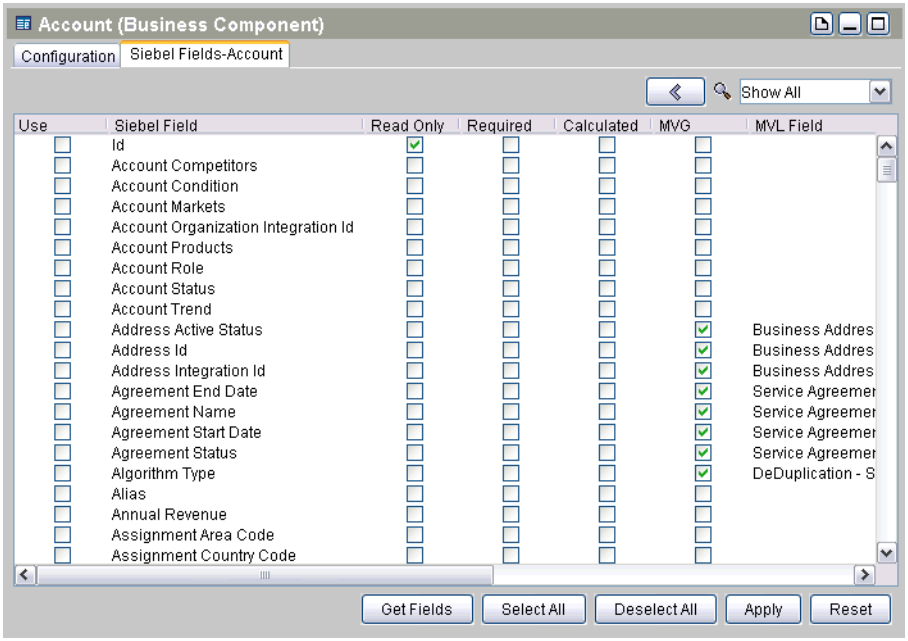


4. Click **Fetch** in the Business Component field in order to access a list of available Siebel Business Components. A pop-up window is displayed, select `Account` and click **OK**. The adapter takes some time to fetch the Account information from the Siebel repository.



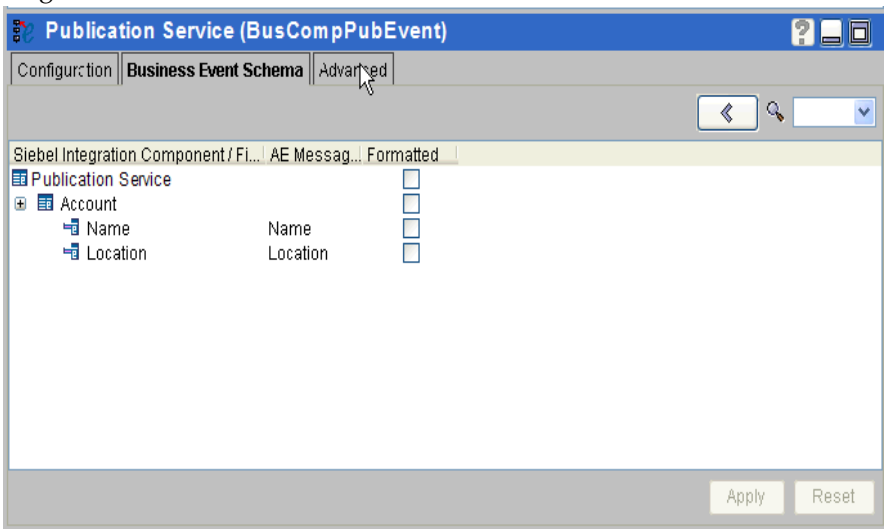
5. Click **Apply** in the `Configuration` tab. The design-time connection will then retrieve the list of available Siebel fields that can be used to construct the publication business event schema. The retrieved fields are populated in the `Siebel Fields` - <*Business Component Name*> tab.

6. Click the `Siebel Fields` tab. In the `Use` column, select `Name`, `Location`, `Industry` and `Type` fields by selecting the appropriate check box. These fields will be included in the Business Event schema. Click **Apply**.



Use the drop-down box to filter the field displayed in the Siebel field table. For example, select **Show Used** to display all fields that had been selected, or type `A` to display all Siebel fields that start with the letter `A`.

7. Click the  icon. The Publication Service configuration tabs are displayed. Click the `Business Event Schema` tab to view the Business Event schema generated.



8. To save the configuration, select **Project>Save** from the main menu.

The sample adapter configuration is now ready to publish your account information.

Deploying and Starting the Adapter

To start the sample adapter configuration you created using the steps in previous sections, use the following steps:

1. Open the properties file for the adapter (`adsbl.tra`) in a text editor. `adsbl.tra` is located in the *<Adapter_Home>*`\bin` directory.
2. Enter the path of the repository file in the `tibco.repourl` parameter of `adsbl.tra`.
3. Enter `/tibco/private/adapter/SiebelExercise` in the `tibco.configurl` parameter of `adsbl.tra`.
4. Open a command window and change directory to the `bin` directory of the adapter installation. For example:
   `cd <Adapter_Home>\bin`
5. Start the adapter configuration using the command: **`adsbl`**

Send a Publication Request and Receive an Account Message

The test is carried out by invoking the `Send` method of the `EAI TIBCO HTTP Agent` Business Service using the Siebel Client to forward the publication request to the Publication Service.

1. Open `Siebel Call Center`.
2. Navigate to the `Business Service Simulator`.

Refer to , Testing the EAI TIBCO HTTP Agent Business Service, page 214 for more information on testing the custom Business Service using `Business Service Simulator`.

3. Select the `EAI TIBCO HTTP Agent` Business Service with the `Send` method.
4. Enter values for the following parameters in the input property set applet: `EventName, KeyName, KeyValue, AgentHTTPServer, and OperationType`.
5. Open a command prompt and start `tibrvlisten` to listen on the subject of the Publication Service.
6. Click **run**.

You will see the message being sent in the publisher adapter window and after a short delay, received in the `tibrvlisten` session that was opened earlier.

Other Examples

The adapter software includes an `examples` folder (in the location, <*Adapter_Home*>`\examples`), provided to help familiarize you with adapter functionality and usage. Along with these examples are *readme.txt* files that give you information about the examples. Detailed information on running the examples can be found in the *TIBCO Adapter for Siebel Examples Guide*.

Chapter 4 Adapter Instance Options

This chapter explains how to create an adapter instance and assign it services by configuring standard settings. All configuration tasks are performed in TIBCO Designer and the information is stored in a project that is later used by the run-time adapter.

Topics

Overview

Adding an Adapter Instance

To start configuring an adapter instance:

1. Establish a design-time connection.
2. Drag and drop the **SiebelAdapterConfiguration** icon to the **Design** panel.
3. In the `Configuration` tab, provide an appropriate name in the `Instance Name` field and click **Apply**.

When an adapter service is added to an adapter instance, the following parameters are automatically generated for the adapter service:

- Subject name
- RVCM name
- RVCMQ name
- Ledger file
- Transactional Name

4. Set the global variables `SiebelDesignTimeAdapterDomain` and `SiebelVersion` with appropriate values.
5. In the `Design-time Connection` tab, set the connection parameters, click **Apply** and then click **Connect**.

Connect will be enabled only if the user name and password are specified.

6. If the Siebel server contains multiple repositories, you need to select the appropriate Siebel **Repository Name**. This step is critical for you to select the correct Siebel Data Model Repository to work with. If uncertain, please consult your Siebel Administrator.

The Siebel Repository select pop-up dialog appears only if there is more than one Siebel Repository available.

Often Siebel's data model repository is customized. There might be different repository names in the system. Make sure the correct one is selected.

Once the design-time connection is established, you are ready to configure the adapter services.

Adding Adapter Services

After configuring global settings for an adapter instance and establishing the Design-time connection, you can select one or multiple adapter services for the instance. The services available to the adapter along with the type of configuration possible for each service is listed below:

- Publication Service — The Publication Service supports publication of the following components.
  - Siebel Business Components — The adapter queries the Siebel Business Components based on the search criteria specified and publishes them on appropriate subject names configured.
  - Non-Siebel Business Components — The adapter publishes the data that comes from the Siebel application, which invokes the adapter, without querying Siebel.
  - Siebel Integration Components — The adapter queries the Siebel Integration Components based on the search criteria specified and publishes them on appropriate subject names configured.
  - Send Complete Integration Object — The adapter publishes the complete integration object received from the Siebel application in the form of an http request, without querying Siebel application.

- Subscription Service — The adapter inserts or updates Siebel Business Components or Integration Components or invokes the Siebel Workflow or Business Service when it receives a message on a subject. The adapter supports subscription of:
  - Siebel Business Components
  - Invoke Siebel Workflow
  - Siebel Invoke Business Service
  - Siebel Integration Components

- Request-Response Service — The adapter allows an external application to:
  - — Query Siebel Business Components
  - — Insert or Update Siebel Business Components
  - — Invoke Siebel Workflow
  - — Query Siebel Integration Components
  - — Insert or Update Siebel Integration Components
  - — Invoke a Siebel Business Service
- Request-Response Invocation Service — The adapter supports querying the following components from the external applications. Upon completion of execution, the adapter returns the data in the form of Siebel property sets to the calling Siebel application.

  The adapter allows an external application to:
  - — Query Siebel Business Components — The adapter queries Siebel Business Component data and generates a request to the external application.
  - — Query Non Siebel Business Component — The adapter generates the request to the external application with the data from the Siebel application that invokes the adapter, without querying Siebel.
  - — Query Siebel Integration Components — The adapter queries Siebel Integration Component data and generates a request to the external application.
  - — Send Receive Integration Objects— The adapter sends and receives Integration Objects to and from the Siebel application.

When you choose to send and receive Integration Objects, the response is always an Integration Object. However, when you choose other options in the list, such as Query Siebel Business Components, the response will be in the schema selected by you in the data section of the Advisory Document.

Adding an Adapter Service to an Adapter Instance:

1. Drag the **SiebelAdapterConfiguration** icon from the Siebel palette to the design panel, or select the **SiebelAdapterConfiguration** template in the project tree panel.
2. In the project tree panel, click the **Adapter Services** folder.
3. Drag the required service icon from the palette panel to the design panel.

Information on how to configure each type of adapter service is included in later sections of this chapter.

After configuring the adapter, you must create the run-time adapter property file and add the project name and adapter instance name.

Adapter Instance Fields

A **SiebelAdapterConfiguration** resource, represents a configurable adapter instance. Once you have configured and saved an adapter instance, the adapter is ready to be run.

The following tabs can be used to define an adapter instance:

Configuration Tab

The `Configuration` tab contains the following fields:

Instance Name

Use the default name (`SiebelAdapterConfiguration`) or replace it with a name of your choice.

- An instance name must use alphanumeric characters. An underscore (_) character can be used. The entire instance name must be less than 80 characters. The space character cannot be used in an instance name.
- An instance name cannot use global variables.
- An instance name must be unique with respect to other adapter instances for the same adapter in the project. The same instance name can be used to name an adapter instance for a different adapter in the same project. For example, an R/3 adapter instance named `TEST` and a Siebel adapter instance named `TEST` can coexist in the same project.
- Each instance name must be unique per adapter within a project even if each instance is defined in a different folder. That is, configuring same-named adapter instances in different folders will not make their names unique.

When you create an adapter instance, the palette automatically creates several resources for it. The names of these resources derive from the name of the instance they belong to. Changing the adapter instance name results in an automatic regeneration of the resources names. If you manually modify any resource name, that particular name will *not* be automatically regenerated next time your rename the adapter instance.

Description

Provide information about the adapter instance that you want stored in the project. The field is optional.

Version

The version string indicates the ActiveEnterprise (AE) format in which the adapter instance is saved. An adapter instance can be saved in AE 4.0, AE 5.0, AE 5.1 or AE 5.2 format.

When a new adapter instance is created in TIBCO Designer 5.x, the version string is set to `AE Version 5.2`. When a 4.x adapter instance is opened in Designer 5.x, the `Version` field is set to `AE Version 4.0`.

- To use a 4.x adapter with a 4.x run-time adapter, the instance must be saved with the `Version` field set to `AE Version 4.0`.

  If you are using TIBCO Designer 5.x to modify 4.x adapter instances, change only features supported by the 4.x. run-time adapter and use the validation utility to verify the instance before deploying the project. The validation utility scans the project and returns warnings if any 5.x features are defined for 4.x adapter instances. Invoke the utility from the `Project>Validate Project for Deployment` menu command in TIBCO Designer.

- To use a 4.x adapter with a 5.x run-time adapter, the `Version` field should be set to `AE Version 5.2`.

  To change versions, click the `Change Version` button.

Message Filter

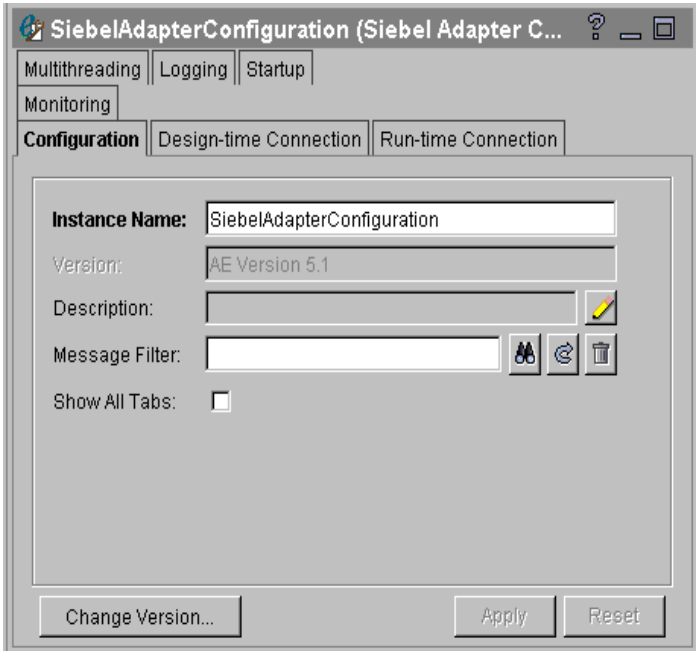
Specify a message filter, if you have configured a message filter resource for use with the adapter. The filter allows you to manipulate incoming and outgoing data before sending it on the network or handing it to the target application. Filters can be written using the TIBCO Adapter SDK. See the *TIBCO Adapter SDK Programmer's Guide* for information about writing a message filter.

Show All Tabs

Check this box to display additional tabs for configuring advanced options.

Sample Configuration Screen

This sample screen shows the `Configuration` tab, along with the default values.



Design-time Connection Tab

The `Design-time Connection` tab is used to establish the connection with the Siebel Repository.

Set design-time connection information to be used for configuring the adapter.

You must define design-time connection information for each adapter instance you want to configure.

Host

The name of the machine on which the gateway server is installed along with port number. If the gateway server is running on a non-default (2320) port, then the parameter, `Host` should have a value *<hostname>:<Port>*. For example, `myGatewayHost:7666`.

Enterprise Server

The Siebel Enterprise under which the Siebel Server is installed.

Siebel Server

The Siebel Server to connect to.

Object Manager

The name of the Application Object Manager that you want to access. This can be a user-defined component or one of the predefined components, SCCObjMgr_enu , `SSEObjMgr` , `ISSObjMgr` , `SSVObjMgr`. (For more information, see *Siebel Server Administration Guide*).

Language

Enter the language to be used while connecting to the Siebel application or click the **Browse** button to select from the list of language parameters. Some of the possible values are `enu`, `chs`, `cht`, `csy`, `dan`. You should provide the same value given at the time of Siebel application installation.

Transport

Choose one of the following values: `tcpip` or `http`.

Compression

The type of compression for network communications (Possible values are `none`, `zlib`, or `pkware`). If compression is required on both the client and server side when using `Resonate`, it must be specified for both sides. Each side compresses communications as defined. When `Resonate` is not used, the server side drives the compression and any client side settings are ignored.

Username

Specify the username for the account used by the design-time connection to access the application. Sample value - `sadmin`.

Password

Specify the password for the account used by the design-time connection to access the application. Sample value - `sadmin`.

Remember Password

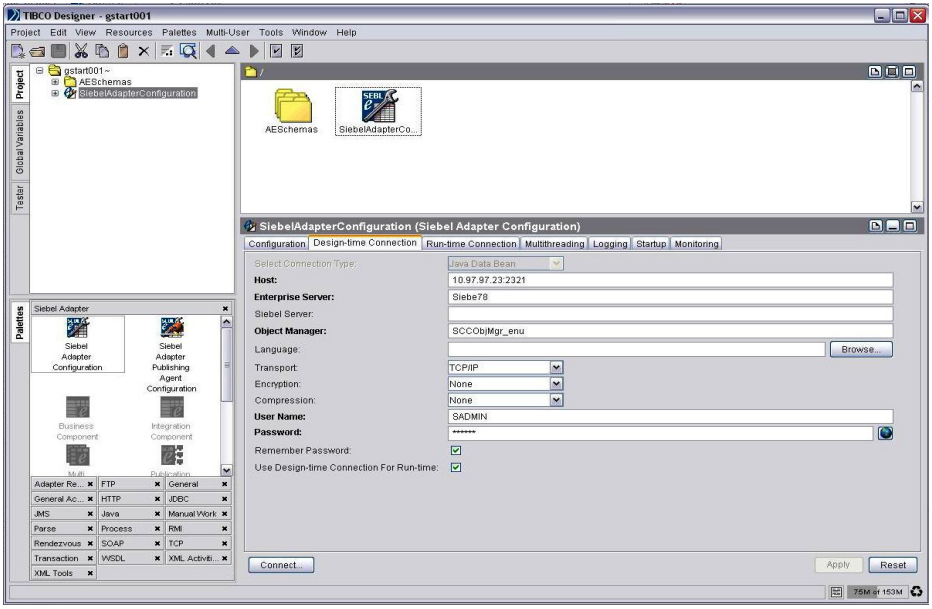
If this field is not selected, the password must be entered each time the project is opened. If it is selected, the password will be stored in the project repository.

Use Design-time Connection For Run-time

When selected (the default), all values specified in the `Design-time Connections` tab apply to run-time connections. When clear, you can enter different run-time connection parameters.

Sample Design-time Connection Screen

This sample screen shows the `Design-time Connection` tab, along with the default values.



Run-time Connection Tab

If `AE version 4.0` is selected in the `Configuration` tab, the `Runtime Connection` tab options will change, see , Run-time Connection Tab (For AE Version 4.0), page 78.

After you have configured an adapter instance, it runs based on the runtime connection information you set. The fields in the `Runtime Connection` tab offer you flexibility in setting the options for your environment.

The following fields are available:

Host

The name of the machine on which the gateway server is installed along with port number. If the gateway server is running on a non-default (2320) port, then the parameter, `Host` should have a value *<hostname>:<Port>*. For example, `myGatewayHost:7666`.

Enterprise Server

The Siebel Enterprise under which the Siebel Server is installed.

Siebel Server

The Siebel Server to connect to.

Object Manager

The name of the Application Object Manager that you want to access. This can be a user-defined component or one of the predefined components, SCCObjMgr_enu , `SSEObjMgr` , `ISSObjMgr` , `SSVObjMgr`. (For more information, see *Siebel Server Administration Guide*).

Language

Enter the language to be used while connecting to the Siebel application or click the **Browse** button to select from the list of language parameters. Some of the possible values are `enu`, `chs`, `cht`, `csy`, `dan`. You should provide the same value given at the time of Siebel application installation.

Transport

Choose one of the following values: `tcpip` or `http`.

Compression

The type of compression for network communications (Possible values are `none`, `zlib`, or `pkware`). If compression is required on both the client and server side when using `Resonate`, it must be specified for both sides. Each side compresses communications as defined. When `Resonate` is not used, the server side drives the compression and any client side settings are ignored.

Username

Specify the username for the account used by the run-time adapter to access the application. Sample value - `sadmin`.

Password

Specify the password for the account used by the run-time adapter to access the application. Sample value - `sadmin`.

Enable Siebel Trace

Enables Siebel tracing when selected.

Trace File

If you have selected `Enable Siebel Trace`, specify the file to be logged. The `Trace File` is generated on the Siebel server.

Trace Type

If you have selected `Enable Siebel Trace`, specify the type of Siebel tracing to be used. Currently, only `SQL` is available.

Maximum Number of Reconnect Attempts

Specify the total number of reconnection attempts to make before the run-time adapter or adapter service is stopped. A value of -1 means reconnection attempts will continue indefinitely.

Number of Reconnect Attempts Before Suspending Impacted Service(s)

Specify the number of reconnection attempts to make before suspending a run-time adapter or adapter service.

Interval between Reconnect Attempts (milliseconds)

Specify the time interval in milliseconds to elapse between each reconnection attempt.

From the 5.3.0 release of the adapter, you can drag and drop global variables to the Reconnection parameters. Ensure that the values held by the global variables are numeric.

Adapter Termination Criteria (after max number of reconnect attempts)

This field is not supported in the current release.

If your adapter supports only a single connection to a vendor application or database, either choice results in the same behavior. The adapter stops if the service loses its connection.

If your adapter supports multiple connections, select from the drop-down list:

- `When Any Service is Suspended` stops the adapter if any one service has been unable to re-establish connection after the specified number reconnection attempts.
- `When All Services Are Suspended` stops the adapter only when all services have been suspended. That is, only the adapter service that cannot reconnect is stopped. Other adapter services that are connected continue to function normally.

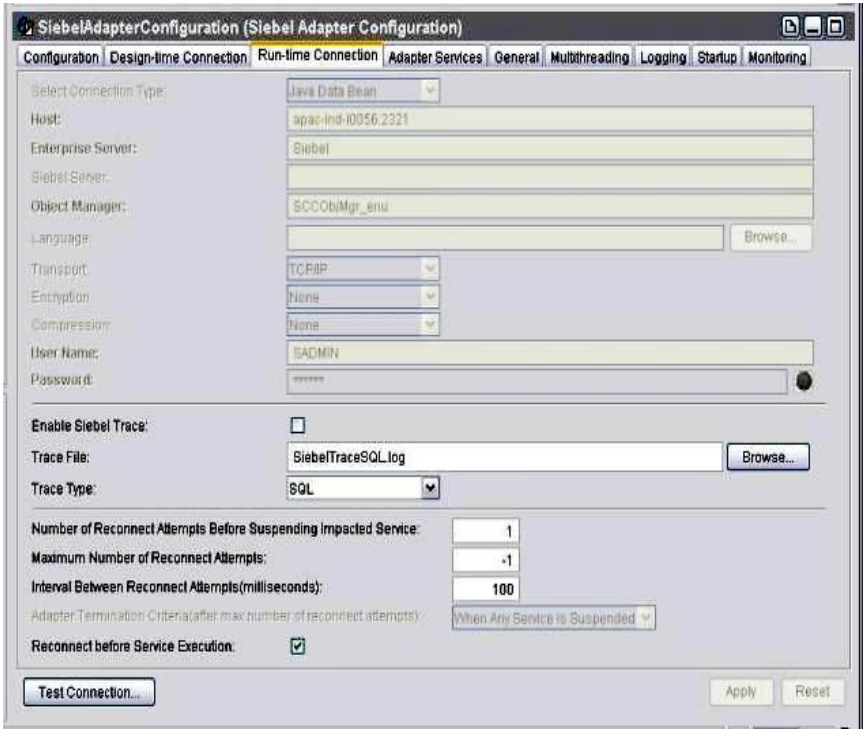
If you do not find the encoding used by Siebel Deployment in the list provided by the TIBCO Designer palette, find the `Java Alias` of that encoding and enter it in the list from TIBCO Designer.

Reconnect before Service Execution

Auto-Reconnection can be configured to be completed before or after executing a service in the adapter. If this option is not selected, only the Subscription service will complete service execution after reconnect. By default, it is not selected.

Sample Run-time Connection Screen

This sample screen shows the `Run-time Connection` tab with default values.



Run-time Connection Tab (For AE Version 4.0)

If the AE Version is changed to 4.0, then the `Run- time Connection` tab remains the same.

Enable Siebel Trace

To enable Siebel native tracing, select this check box. Tracing is based on the settings in the following two parameters specific to Siebel tracing (Trace File, Trace Type).

Trace File

Full path and name of the Siebel trace file to generate. Siebel overwrites this file on each startup. The `Trace File` is generated on the Siebel server.

Trace Type

The Siebel trace type. Currently, only SQL tracing is available for selection.

Encoding Value

Enter the language to be used while connecting to the Siebel application. Some of the possible values are `enu`, `chs`, `cht`, `csy`, `dan`. You should provide the same value given at the time of Siebel application installation. Refer to *Appendix B Encoding Tables* in the *TIBCO Adapter Concepts Book*.

The reconnection parameters are not used in 4.x configuration.

Number of Reconnect Attempts Before Suspending Impacted Service

Specify the number of reconnection attempts to make before suspending a run-time adapter or adapter service.

From the 5.3.0 release of the adapter, you can drag and drop global variables to the Reconnection parameters.

Maximum Number of Reconnect Attempts

Specify the total number of reconnection attempts to make before the run-time adapter or adapter service is stopped. A value of -1 means reconnection attempts will continue indefinitely.

Interval between Reconnect Attempts (milliseconds)

Specify the time interval in milliseconds to elapse between each reconnection attempt.

1. Select the desired Bin Path and Config File name and the path by using these steps:

   Using Global Variables.

   a. Click **Global Variables**.

   b. Click **SiebelBinPath** and fill in the value column with the desired path. Click **Set**.

   c. Click **SiebelConfigFile** and complete the requested value. Click **Set**.

   d. Click **Close** to return to the `Runtime Connection` tab.

Using the **Browse** button:

— Click the **Browse** button against `Bin Path` and select the appropriate path.

— Click the **Browse** button against `Config File` and select the appropriate file.

2. Click **Apply**.

The global variables will be used for all adapter instances. However, if you require to set different values, set the values locally for the particular adapter configuration by manually specifying the required parameters in the `Design-time Connection` and `Runtime Connection` tabs. For details on setting Global Variables, see , Using Global Variables, page 176.

Multithreading

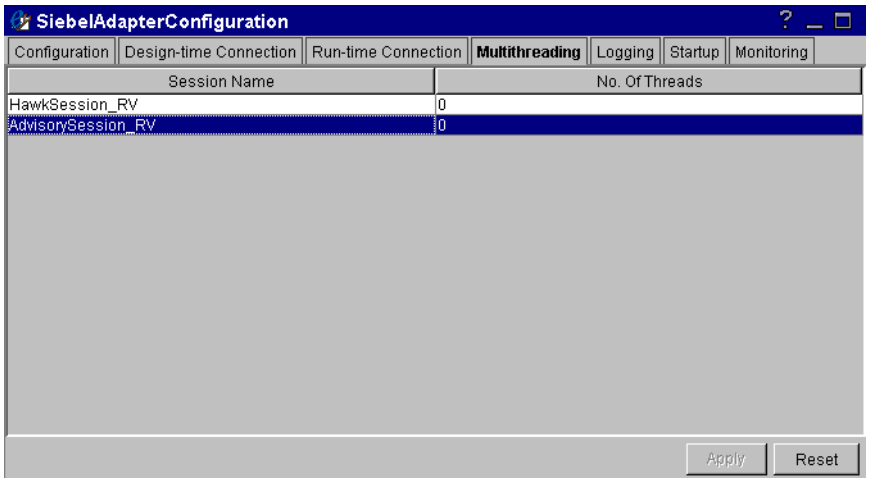
You can specify the thread count for each session in the adapter instance.

From the 5.3.0 release of the adapter, you can drag and drop global variables to the Multithreading parameters. While working with global variables, ensure the following:

1. Click the `No. Of Threads` column where the global variable needs to be added.
2. First, click on the global variables and then drag and drop them to the Multithreading parameters.
3. Values held by the global variables are numeric.

Sample Multithreading Screen

This sample screen shows the `Multithreading` tab with default values.



Adapter Services Tab

This tab is visible only when `Show All Tabs` is selected in the `Configuration` tab.

Use SSL

Select this option to use secured communication. If selected, the outbound requests will use the HTTPS protocol for secure communication between Siebel sever and the adapter. HTTPS will be configured at the instance level.

HTTP Communication

The following fields are displayed if `Use SSL` option is not selected:

Http Port to Listen to Siebel Events

The port number on which the adapter will listen for outbound requests. The port number can range between 5000 to 65000.

The `Http Port to Listen to Siebel Events` and `Number of Threads to Process Siebel Events` tabs are not valid for 4.x configuration.

Number of Threads to Process Siebel Events

The number of threads to be initialized to process the outbound requests.

Http Encoding

Specify the language encoding being used by the Siebel deployment. This parameter will be used by the adapter in outbound scenarios only. The default value is `UTF8`. The adapter uses this value for processing the HTTP requests from the Siebel application.

For Siebel 7.5.x versions, always specify `UTF8` as the encoding value, since the custom Business Service `EAI TIBCO HTTP Agent` always converts the HTTP request from Siebel to `UTF8` format.

Values in the `Encoding Value` column are the ones stored in the repository.

Table 11 Http Encoding Options

Encoding Options	Language	Encoding Value
`Big5`	Chinese (Traditional)	Big5
`Cp936`	Chinese (Simplified)	CP936
`GBK`	Chinese (Simplified)	GBK
`IBM-1148`	Danish, English (U.S), French, German, Italian, Spanish.	CP1148
`KSC-5601`	Korean	KSC5601
`SHIFT_JIS (CP943)`	Japanese	CP943
`SHIFT_JIS (TIBCO)`	Japanese	SHIFT_JIS
`Windows Arabic`	Arabic	CP1256
`Windows Cyrillic`	Russian	CP1251
`Windows Greek`	Greek	CP1253
`Windows Hebrew`	Hebrew	CP1255
`Windows Latin-1`	Latin - 1	CP1252
`Windows Latin-2`	Latin - 2	CP1250

Table 11 Http Encoding Options

Encoding Options	Language	Encoding Value
Windows Turkish	Turkish	CP1254
UTF16_BigEndian	Any	UniCodeBig
UTF16_LittleEndian	Any	UniCodeLittle
UTF8	Any	UTF-8
ZHT16MSWIN950	Chinese (Traditional)	CP950

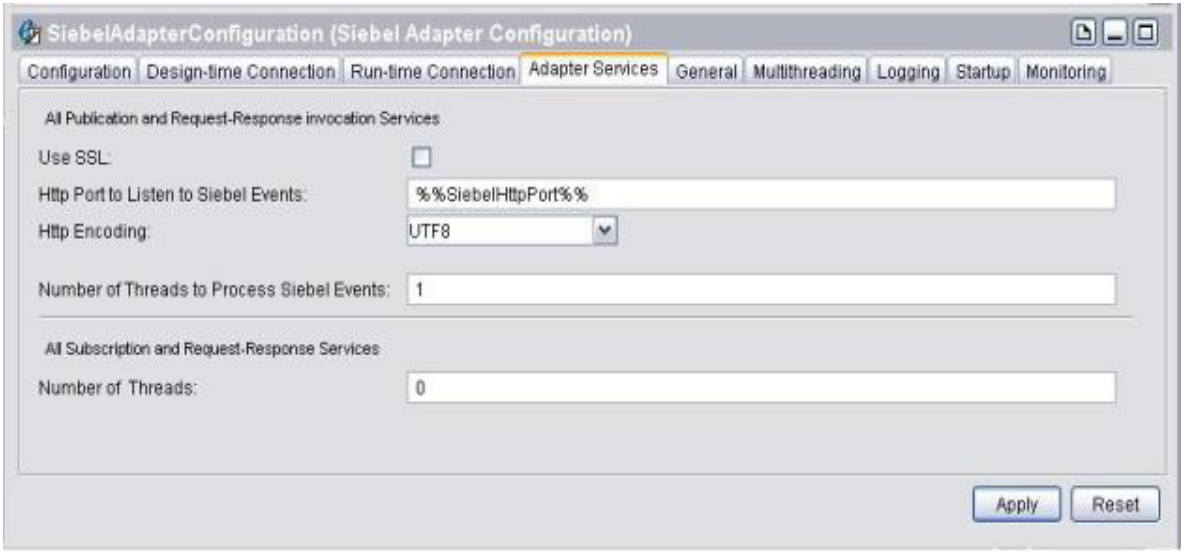
Number of Threads

Number of threads to be initialized to process the inbound requests. The value specified here will be considered as the default thread count for each session in the adapter instance. If the `Thread Count` value is not specified at the session level in the `Multithreading` tab, then the number of threads created for the particular session will be equal to the number of threads specified here.

You can overwrite the Siebel Global Variable by entering the value of the connection parameter directly.

Sample Adapter Services Screen

This sample screen shows the `Adapter Services` tab with default values. In this case, the adapter uses HTTP for communication between Siebel and the adapter.



HTTPS Communication

The following fields are displayed if `Use SSL` option is selected:

Https Port to Listen to Siebel Events

The port number on which the adapter will listen for outbound requests. The port number can range between 5000 to 65000. By default, the port number is 9100.

Https Encoding

Specify the language encoding being used by the Siebel deployment. This parameter will be used by the adapter in outbound scenarios only. The default value is `UTF8`. The adapter uses this value for processing the HTTPS requests from the Siebel application. The encoding options for HTTP and HTTPS are the same. Refer to Table 11, Http Encoding Options, page 82 for more details.

When you start your client, if you have generated the Certificate Path using the `Keytool` utility, you can install the Certificate on the client by accessing `https://<host_name>:<HTTPS_Port_Number>`.

Certificate Path

Specify the path of the Keystore where the certificate is available. You can use the `keytool` utility to create a certificate.

A Certificate can be generated using the `Keytool` utility. Following command is used to create a certificate:

`keytool -genkey -keystore <KeyStore_Name> -keyalg rsa -alias <Alias_Name> -storepass <KeyStore_Password> -keypass <Key_Password>`

Where:

KeyStore_Name: The name of the keystore where the Certificate will be generated.

Alias_Name: The alias name given to a public/private key pair in the Keystore.

KeyStore_Password: The password to access the Keystore.

Key_Password: The password to access the alias.

While generating a Certificate, ensure that the first name and the last name should be the IP address of the machine on which the Siebel adapter is running.

Key Password

Specify the password to access a Public/Private key pair in a keystore.

Keystore Password

Specify the password to access the keystore. A keystore is a collection of Public/Private key pair.

You can overwrite the Siebel Global Variable by entering the value of the connection parameters directly.

Number of Threads to Process Siebel Events

The number of threads to be initialized to process the outbound requests.

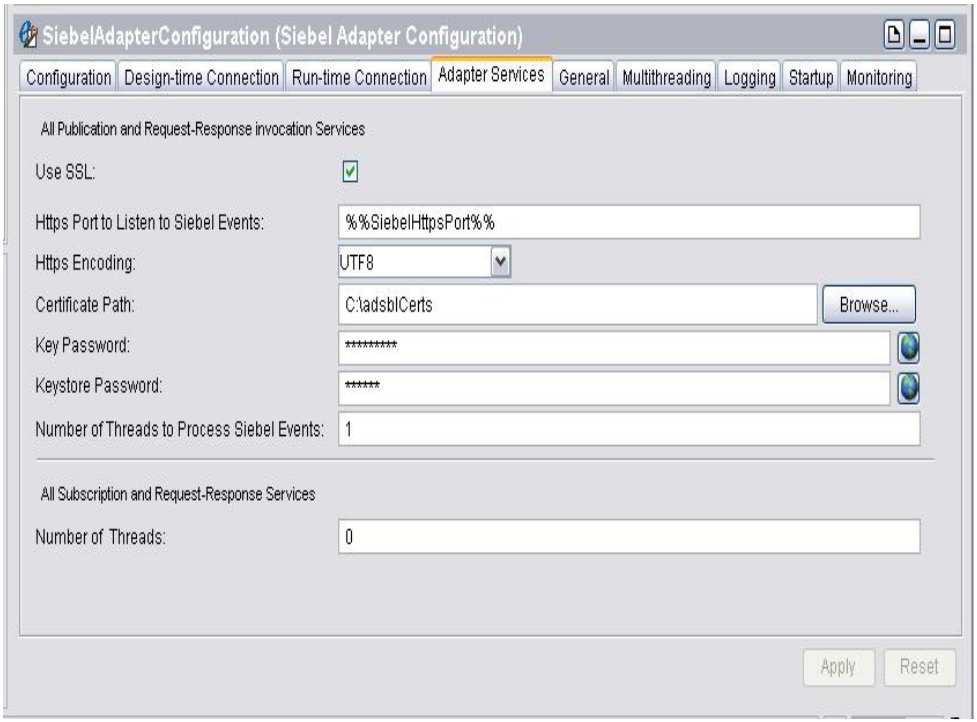
Number of Threads

Number of threads to be initialized to process the inbound requests. The value specified here will be considered as the default thread count for each session in the adapter instance. If the `Thread Count` value is not specified at the session level in the `Multithreading` tab, then the number of threads created for the particular session will be equal to the number of threads specified here.

Both HTTP and HTTPS share the same threadpool.

Sample Adapter Services Screen

This sample screen shows the `Adapter Services` tab with default values.



General Tab

This tab is visible only when `Show All Tabs` is selected in the `Configuration` tab.

Termination Subject or Topic

A message sent on the termination subject (if TIBCO Rendezvous is the transport) or topic (if JMS is the transport) stops the adapter. In most cases, you should use the default value.

See *TIBCO Rendezvous Concepts* for information about specifying subject names. See the *TIBCO Enterprise Message Service User's Guide* for information about publishing on a topic.

Custom User Exit

Use this field to provide the `User Exit dll` file for the 4.x adapter configuration and the `User Exit jar` file for the 5.x adapter configuration.

The User Exit feature is now deprecated.

Generate Adapter Startup Script

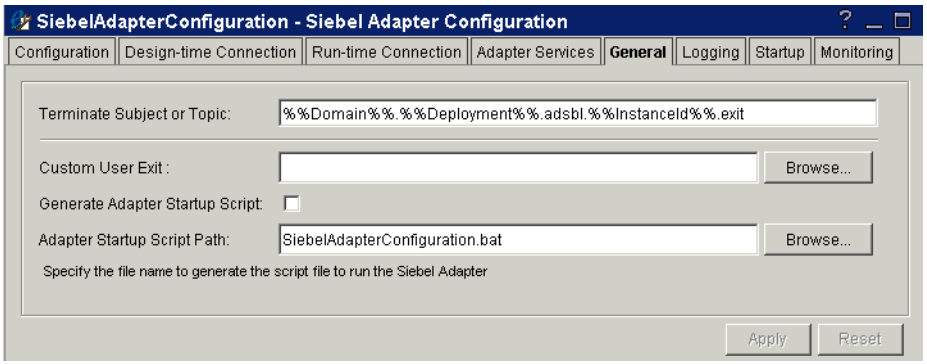
Select this field to generate the scripts for running the adapter

Adapter Startup Script Path

Specify the path where the generated scripts should be saved.

Sample General Tab Screen

This sample screen shows the `General` tab with default values.



Logging Tab

Use Advanced Logging

When `Use Advanced Logging` is not selected (the default), you can set two standard output destinations (sinks) for trace messages and set the tracing level for the roles selected.

When `Use Advanced Logging` is selected, you have complete control on selecting the destinations and associating desired roles with each of the destinations.

To create and configure the sinks, select the log sinks folder under the `Advanced` folder in the project panel.

To create sinks, drag and drop the `Generic log sink` icon from the palette panel into the design panel. From the configuration panel, select the sink type. The following are the sink types available:

— File

— Hawk

— Network

— STDIO

When File and STDIO sinks are created from the `Generic log sink` they offer further configuration options. For the File sink, the file limit, file count, and the option to append or overwrite can be specified. When created by default, this is set to 30000 bytes, 3 and append mode respectively. For the STDIO sink, the option to write to `stdout` or `stderr` can be selected. When created by default, `stdout` is selected.

The Hawk sink uses the hawk session, created and used by the adapter for monitoring purposes, to send tracing messages to the TIBCO Hawk monitor

or Display. For details on Hawk sessions, see , Using Global Variables, page 176. The configuration for the Hawk sink involves specifying the `MicroAgent Name` that must be specified in the configuration panel.

The Network sink is used to publish tracing message on TIBCO Rendezvous. The configuration for the network sink involves specifying the session, and the subject on which the trace messages needs to be published.

For all the sinks, optionally the name and description for the sinks can be provided.

Log to Standard I/O

(STDIO Sink) When selected, trace messages are displayed in the command prompt window where the adapter is started. When not selected, trace messages do not display in the window.

Log File

Specify the name of the log file (log sink) to which trace messages are written. Global variables can be used to specify the location of the log file. See , Using Global Variables, page 176 for more information.

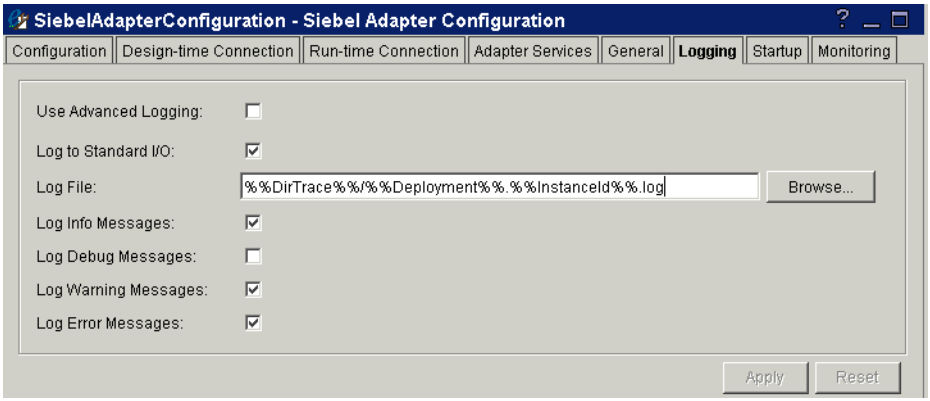
The roles available are Info, Debug, Warning, and Error messages. The trace message generated depends on the roles selected. Turning on the roles can affect the performance of the adapter. Therefore, it is recommended that you turn on the required roles only.

Log Info/Debug/Warning/Error Messages

Trace messages of the selected level(s) will be collected in the named log sink. You can configure what levels of trace messages you want logged, and where trace messages are sent. There are three types of logs (log sinks) that you can configure to hold trace messages, corresponding to three levels (roles) of trace messages, Information, Warning and Error. A fourth level of trace messages, Debug, is reserved and should not be enabled unless requested by the TIBCO Product Support Group. This option writes a lot of information to the log file and significantly reduces the speed of the adapter.

Sample Logging Screen

This sample screen shows the `Logging` tab with default values.



Startup Tab

Default Startup State

This field is predefined and cannot be changed. It sets the default startup state for endpoints. `Active` means endpoints are auto-created and active at adapter startup.

Show Startup Banner

The startup banner displays the run-time adapter version, the infrastructure version on which the adapter is built, and copyright information in the console window when the adapter is started.

Default Session

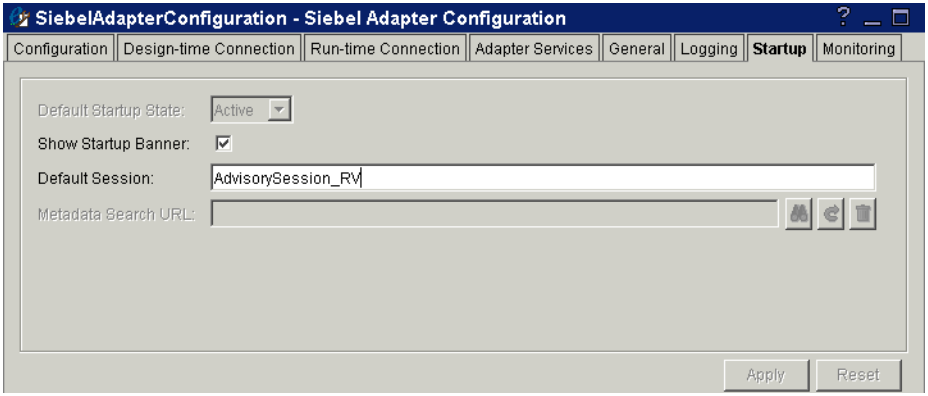
Specify the name of a default TIBCO Rendezvous session for the adapter to use. The default session created for Siebel, `AdvisorySession_RV`, is displayed.

Metadata Search URL

This field is predefined and cannot be changed. The field specifies the location where the adapter searches for base schemas. The adapter searches for any schema that has been defined and saved at this location, and that should be loaded at startup.

Sample Startup Screen

This sample screen shows the `Startup` tab with default values.



Monitoring Tab

Many of the following fields make use of global variables. Click the `Global Variables` tab in the project panel to enter a value for a global variable.

Enable Standard Microagent

Allows you to turn on or off the standard TIBCO Hawk Microagent. The way to turn it on or off is also configurable. By clicking the **globe** icon, a standard check box or text value (true or false) can be used to turn the standard microagent on or off.

Standard Microagent Name

This is the name for the standard microagent that will be registered with the TIBCO Hawk system. In most cases the default value is used. The `InstanceId` variable need not be set because it is automatically set at run time by the run-time adapter.

Enable Class Microagent

Allows you to turn on or off the instance or class specific standard TIBCO Hawk Microagent. The way to turn it on or off is also configurable. By clicking the `globe` icon, a standard check box or text value (true or false) can be used to turn the class microagent on or off.

Class Microagent Name

This is the name for the class microagent that will be registered with the TIBCO Hawk system. In most cases the default value is used.

Default Microagent Session

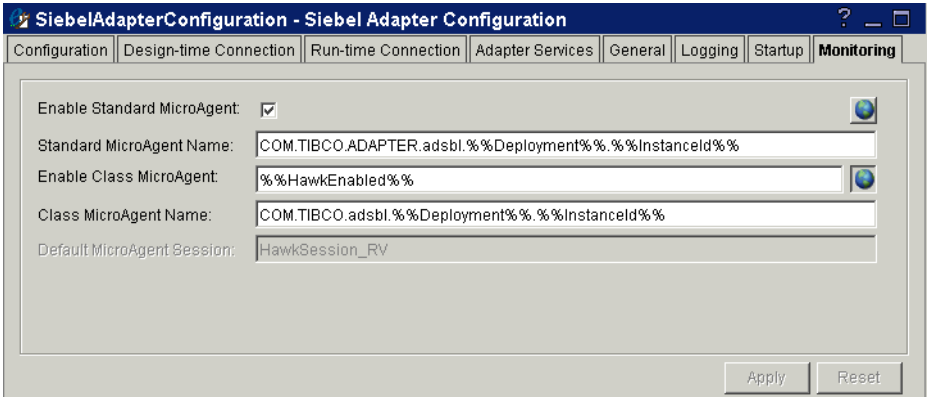
Specify the name of the TIBCO Rendezvous session that will be used by the standard, class, and custom microagents.

The session name and the corresponding session is automatically generated by TIBCO Designer. Do not change the session name or the session. However, you can modify the session parameters if required. Navigate to the `Sessions` folder under the `Advanced` folder to modify the session parameters.

Make sure you have set the correct parameter value for the global variables that correspond to the TIBCO Hawk configuration. If the session parameters are not set properly, the microagents will not display in the TIBCO Hawk Display.

Sample Monitoring Screen

This sample screen shows the `Monitoring` tab with default values.



Setting Adapter Service Advanced Options

This is an advanced setting. You can use the `Advanced` tab for an adapter service to specify a TIBCO Rendezvous or JMS subject, endpoint reference, and schema reference.

Advanced Tab

The `Advanced` tab is available for all the adapter services. The following parameters can be configured using this tab:

Message Subject

Enter a subject name different from the default (For TIBCO Rendezvous)

Destination

Enter a subject name different from the default (For JMS).

If you need to globally change the variables `%%Domain%%` and `%%Deployment%%` in the default subject name, use the `Global Variables` tab to change the variable value. Ensure that the values are not set to null.

Endpoint Reference

Specify an endpoint reference for the service.

Click the **Browse resources...** button to select the endpoint reference.

Click the **Go to references resource...** button to reconfigure the existing reference.

Click the **Clear reference** button to clear the field.

Endpoint reference objects are explained in the *TIBCO Designer Adapter Resource Management Guide*. You can access help from **Help>Help For>Adapter Resources**.

Class Reference

The schema class reference points to the class created for this component.

Click the **Browse resources...** button to change the class reference.

Click the **Go to referenced resource...** button to reconfigure the existing reference.

Click the **Clear reference** button to clear the field.

Class reference objects are explained in the *TIBCO Designer Schema Management Guide*. You can access help from **Help>Help For>Adapter Schemas**.

Publication Service

The adapter queries the Siebel Business Component or Siebel Integration Component data objects from the Siebel System through the Siebel Object Interface and publishes the data on the specified subject with the desired quality of service.

The Publication Service requires the custom Business Service, `EAI TIBCO HTTP Agent` to be imported into Siebel to forward the publication request from Siebel to the adapter.

For the Publication Service, you can configure parameters under the following tabs:

- Configuration Tab
- Business Event Schema Tab
- Advanced Tab

The `Business Event Schema` tab is available only for a service where Siebel Business Components or Siebel Integration Components are configured. This tab is not available for Non-Siebel Business Component configuration.

Setting Publication Service Configuration Options

This is a standard setting. You can specify the Publication Service name, quality of service, and wire format.

To define Publication Service configuration:

1. Click the **Adapter Services** node in the project panel under the adapter configuration instance.
2. Drag a **Publication Service** icon from the palette panel to the design panel.
3. Specify the following parameters in the `Configuration` tab.

Configuration Tab

Name

Specify a unique name among all services defined for this adapter instance.

Business Event

The name of the Business Event.

Transport Type

Choose the transport type as required.

Select the transport to be used by the run-time adapter, `JMS` or `Rendezvous`. After selecting the transport, the transport-specific configuration fields display.

The transport can be configured to use a trusted store and identity resource for use in SSL (Secure Sockets Layer) configurations. TIBCO Rendezvous sessions and JMS topics have an SSL configuration field which uses a dialog to perform SSL configuration.

To enable and configure SSL, in the `Project` panel, expand the `Advanced` folder and then expand the `Sessions` folder. Select the TIBCO Rendezvous session or JMS topic and click `Use SSL?`. The SSL configuration options are explained in the online help associated with the session dialog. Click the question mark to display the online help.

On selecting `Rendezvous` as the `Transport Type`, the `Quality of Service` and `Wire Format` drop-downs appear. On selecting `JMS` as the `Transport Type`, the `Wire Format`, `Delivery Mode` and `Connection Factory Type` drop-down bars appear.

The Transport Type, `JMS`, is supported only for version 5.x, version 4.x cannot work with JMS transport

Quality of Service

The level of service. Possible values are:

- `Certified` (Certified Message Delivery), which guarantees that every certified message reaches its intended recipient in the order sent. The message can be sent across network boundaries, and if a network fails, delivery attempts continue until delivery succeeds or until the message's time limit expires. This is often called guaranteed delivery. When this quality of service is chosen, an RVCM session will be used.
- `Reliable` (Reliable Message Delivery), which ensures that each multicast or broadcast message is received as long as the physical network and packet recipients are working, and that the loss of a message is detected. This choice can compensate for brief network failures because it can retransmit a message on request if the first attempt fails. This choice is appropriate when message

delivery is expected but some loss can be tolerated. When this quality of service is chosen, an RV session will be used.

Transactional (RVTX) quality of service is not supported.

Wire Format

Select the format from the drop-down list, which is to be used when messages are sent. Possible values are:

- `ActiveEnterprise Message (default)`, an externally described XML message format supported by the TIBCO Adapter SDK.
- `ActiveEnterprise XML`, allows you to retrieve data as XML documents and metadata as XML Schemas (XSD).
- `Rendezvous Message`, a self-describing message format used by TIBCO Rendezvous applications.

The wire format for both, publisher and subscriber must be the same.

See *TIBCO Rendezvous Concepts* for details about levels of service.

Use SSL

Select this option if you want to use a secured connection. If you select this option, both the client and server must establish a certified connection.

Delivery Mode

The delivery mode for the message. There are two options to choose from.

- `Persistent` indicates that the message will be available to a JMS client even if the JMS server goes down.
- `Non-persistent` indicates that the message will not be available to a JMS client if the JMS server goes down.

See the *TIBCO Enterprise Message Service User's Guide* for more information.

Connection Factory Type

A message can be published to a topic or sent to a queue.

- `Queue` indicates that a message sent to a queue is consumed by one receiver. Each message has only one receiver though multiple receivers may connect to the queue. The first receiver to access the queue gets the message. The other receivers do not. This messaging model is known as point-to-point.
- `Topic` indicates that a message published to a topic is broadcast to one or more subscribers. All messages published to the topic are received by all services that have subscribed to the topic. This messaging model is known as publish-subscribe.

For details on JMS concepts refer to the *TIBCO Enterprise Message Service User's Guide*.

Publication Type

Select the publication type from the drop-down list. The types of publication configuration are:

- Siebel Business Component
- Non-Siebel Business Component
- Siebel Integration Components
- Send Complete Integration Object

4. Click **Apply** to generate the Publication Service. Depending on the type of publication you have selected, the appropriate screen displays allowing you to set the required configuration parameters.

You need to configure the custom Business Service parameters for sending the publication request from the Siebel application to the adapter. Refer to *Using the EAI TIBCO HTTP Agent Business Service, page 193* for more information.

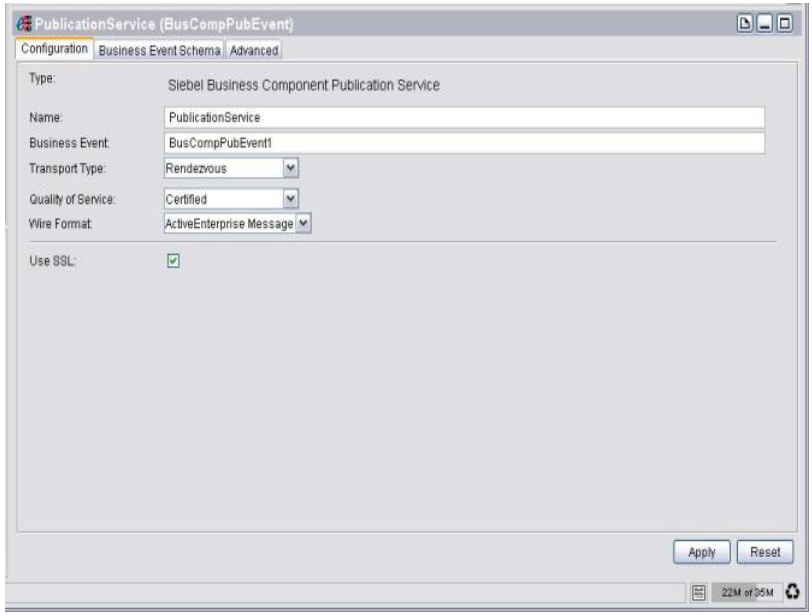
The configuration parameters for each of the following types is described in the following sections of this chapter:

- , Siebel Business Component Configuration, page 122
- , Non-Siebel Business Component Configuration, page 131
- , Siebel Integration Components Configuration, page 134
- , Setting Publication Configuration Options, page 152

For `Advanced` tab configuration options, see , Advanced Tab, page 93.

Sample Publication Service Configuration Screen

The following screen shows a Publication Service, of the Siebel Business Component type, configured to publish messages using certified message delivery.



Subscription Service

The adapter inserts, updates and deletes Siebel Business Component data objects into the Siebel system through the Siebel object interface. The adapter does this when an incoming message is received on a specified subject name and the subscription type is set to insert, update or delete Business Components. An incoming message need not contain data for all selected Siebel fields defined in each level of the Business Event schema. The adapter checks the repository for attributes defined in the Business Event schema. If the incoming message does not contain data for a specifically defined field in the Business Event schema, the adapter will ignore it and Siebel will assign the appropriate default, if applicable. For example, the `Id` field is typically generated by the Siebel system on insertion and then used in inserting or updating the child Business Components.

The adapter invokes a Siebel Workflow through the Siebel Workflow Process Manager when an incoming Business Event message is received on the specified subject and the subscription type is set to invoke Siebel Workflow. Refer to , Configuring an Adapter Service to Invoke Siebel Workflow, page 141 for details on how to configure a Subscription Service to invoke Siebel Workflow and convert external TIBCO Rendezvous messages into a Siebel Property Set. (The Siebel Property Set is the input property for the Siebel Workflow).

You can configure parameters under the `Configuration`, `Business Event Schema` and `Advanced` tabs using the following information:

- Configuration Tab
- Business Event Schema Options
- Advanced Tab

The `Business Event Schema` tab is available only for a subscriber where Siebel Business Component, Siebel Workflow or Siebel Integration Components are configured.

Information in the `Advanced` tab becomes available after you complete and apply the requested information in the `Configuration` tab.

Setting Subscription Service Configuration Options

This is a standard setting. You can specify the Subscription Service name, quality of service and wire format.

To configure a Subscription Service:

1. Drag the **SiebelAdapterConfiguration** icon from the Siebel palette to the design panel or select the template in the project panel.

2. Drag a **Subscription Service** icon to the design panel.
3. Specify the following parameters in the `Configuration` tab.

Configuration Tab

Name

Enter a name unique among all services defined for this adapter instance.

Transport Type

Select the transport type to be used by the run-time adapter as `JMS` or `Rendezvous`. After selecting the transport, the transport-specific configuration fields display.

The transport can be configured to use a trusted store and identity resource for use in SSL (Secure Sockets Layer) configurations. TIBCO Rendezvous sessions and JMS topics have an SSL configuration field which uses a dialog to perform SSL configuration.

To enable and configure SSL, in the `Project` panel, expand the `Advanced` folder and then expand the `Sessions` folder. Select the TIBCO Rendezvous session or JMS topic and click `Use SSL?`. The SSL configuration options are explained in the online help associated with the session dialog. Click the question mark to display the online help.

On selecting `Rendezvous` as the `Transport Type`, the `Quality of Service` and `Wire Format` drop-down bars appear. On selecting `JMS` as the `Transport Type`, the `Wire Format`, the `Delivery Mode` and `Connection Factory Type` drop-down bars appear.

Quality of Service

Select how messages are to be received from the drop-down list.

- `Certified` (Certified Message Delivery), which guarantees that every certified message reaches its intended recipient in the order sent. The message can be sent across network boundaries, and if a network fails, delivery attempts continue until delivery succeeds or until the message's time limit expires. This is often called guaranteed delivery. When this quality of service is chosen, an RVCM session will be used.
- `Reliable` (Reliable Message Delivery), which ensures that each multicast or broadcast message is received as long as the physical network and packet recipients are working, and that the loss of a message is detected. This choice

can compensate for brief network failures because it can retransmit a message on request if the first attempt fails. This choice is appropriate when message delivery is expected but some loss can be tolerated. When this quality of service is chosen, an RV session will be used.

- `Distributed Queue` (Distributed Queue Delivery) indicates load balancing should be enabled. This is the default value.

Transactional (RVTX) quality of service is not supported.

Wire Format

Select the format to use when messages are received from the drop-down list. Possible values are:

— `ActiveEnterprise Message` (default), an externally described XML message format supported by the TIBCO Adapter SDK.

— `ActiveEnterprise XML`, allows you to retrieve data as XML documents and metadata as XML Schemas (XSD).

— `Rendezvous Message`, a self-describing message format used by TIBCO Rendezvous applications.

The format for both the publisher and subscriber must be the same, otherwise an error will occur.

See *TIBCO Rendezvous Concepts* for details about levels of service.

Delivery Mode

An adapter Subscription Service can be `durable` or `non- durable`.

— `Durable` indicates that the service is registered with the JMS server. The JMS server holds messages sent to a durable Subscription Service until they are consumed by the service. The service may be down and expect to receive its messages when it starts working.

— `Non-durable` indicates that the service is not registered with the JMS server. The JMS server does not hold messages sent to a non-durable Subscription Service. If the service is down, it will not receive the messages that arrived at the JMS server while the service was down.

For details, see the *TIBCO Enterprise Message Service User's Guide*.

Connection Factory Type

A message can be published to a topic or sent to a queue.

- `Queue` indicates that a message sent to a queue is consumed by one receiver. Each message has only one receiver though multiple receivers may connect to the queue. The first receiver to access the queue gets the message. The other receivers do not. This messaging model is known as point-to-point.
- `Topic` indicates that a message published to a topic is broadcast to one or more subscribers. All messages published to the topic are received by all services that have subscribed to the topic. This messaging model is known as publish-subscribe.

For details on JMS concepts refer to the *TIBCO Enterprise Message Service User's Guide*.

Subscription Type

Select the supported operation for this Subscription Service. The types of subscription configuration are:

- Siebel Business Component
- Invoke Siebel Workflow
- Siebel Integration Components
- Siebel Invoke Business Service

Operation Type

Select the type of operation to be performed on Siebel data. The operation types available are:

- `Insert/Update` Inserts a record if the record does not exist, updates if the record exists.
- `Insert` Inserts a new record.
- `Update` Updates the existing record in the Siebel database.
- `Delete` Deletes an existing record from Siebel database.

4. Click **Apply** to generate the Subscription Service. Depending on the `Subscription Type` that you have selected, a new configuration screen with additional parameters displays. For example, if `Siebel Workflow Invocation` is selected as the `Subscription Type`, the additional parameters displayed are, `Business Event`, `Integration Object`, `Integration Object`

Name and Workflow Process. The complete list of additional parameters is given next.

The Integration Object and Integration Object Name fields appear only when invoking Siebel Workflow.

Integration Object

Select Yes if the Siebel workflow is using an integration object.

Integration Object Name

The name of the integration object to be used by the workflow.

Business Event

The name of the Business Event.

Request Schema Reference

Select a Siebel adapter schema for integration objects from the repository.

Business Service

The name of the Business Service. Click on the **Fetch** button to select from the Business Services in the Siebel repository.

Method Name

The name of the method.

Workflow Process

The name of the Siebel workflow process to be invoked.

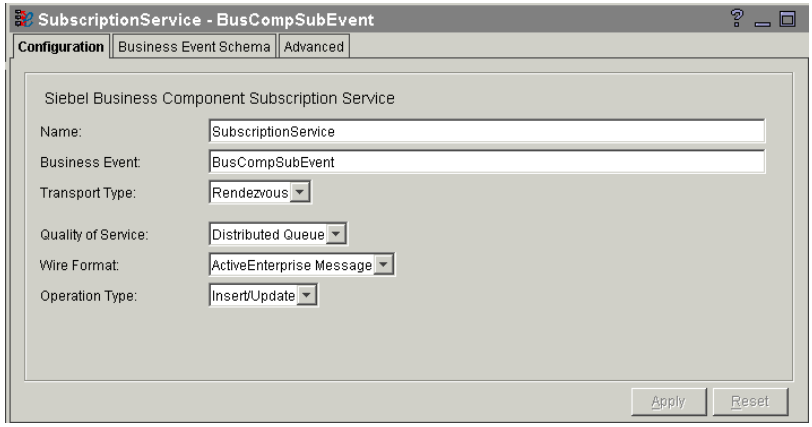
To generate schemas for the various subscription types refer to the sections listed below:

- Siebel Business Component Configuration, page 122
- Configuring an Adapter Service to Invoke Siebel Workflow, page 141
- Siebel Integration Components Configuration, page 134
- Sample Workflow Invocation Using Subscriber, page 146

For Advanced tab configuration options, see , Advanced Tab, page 93.

Sample Subscription Configuration Service

The following screen shows a Subscription Service configured to receive messages using distributed queue message delivery where messages are received and explicit confirmation sent back to the Publisher.



Request-Response Service

When running as a Request-Response Service or server, the adapter allows a TIBCO Rendezvous or TIBCO JMS application to query, insert, update or delete Siebel Business or Integration Component data, or invoke a Siebel Workflow process. In the case of a Request-Response Service to query Siebel Business Components, the adapter returns one or more results, and upon completion, it sends a result code to the requesting application. In the case of a Request-Response Service to insert or update a Siebel Business Component, the adapter returns an advisory document and a result code to the requesting application upon completion. Refer to Appendix C, Troubleshooting, page 335 for details on the operations supported by the Request-Response Service. See, Configuring an Adapter Service to Invoke Siebel Workflow, page 141 for details on requests to invoke a Siebel Workflow.

You can configure parameters under the following tabs:

- Configuration Tab
- Business Event Schema Tab
- Advanced Tab

Setting Request-Response Service Configuration Options

This is a standard setting. Request-Response Service configuration involves specifying a name, quality of service and wire format. A server operation allows the adapter to process requests from client applications and return results in a reply to the client.

To define configuration parameters:

1. Drag the **SiebelAdapterConfiguration** icon from the Siebel palette to the design panel or select the template in the project panel.
2. Drag a **Request-Response Service** icon to the design panel.
3. Specify the following parameters in the `Configuration` tab.

Configuration Tab

Name

Enter a unique name for the request-reply service for this adapter.

Transport Type

Select the transport to be used by the run-time adapter, `JMS` or `Rendezvous`. After selecting the transport, the transport-specific configuration fields display.

The transport can be configured to use a trusted store and identity resource for use in SSL (Secure Sockets Layer) configurations. TIBCO Rendezvous sessions and JMS topics have an SSL configuration field which uses a dialog to perform SSL configuration.

To enable and configure SSL, in the `Project` panel, expand the `Advanced` folder and then expand the `Sessions` folder. Select the TIBCO Rendezvous session or JMS topic and click `Use SSL?`. The SSL configuration options are explained in the online help associated with the session dialog. Click the question mark to display the online help.

On selecting `Rendezvous` as the `Transport Type`, the `Quality of Service` and `Wire Format` drop-down bars appear. On selecting `JMS` as the `Transport Type`, the `Wire Format`, the `Delivery Mode` and `Connection Factory Type` drop-down bar appear.

Quality of Service

The level of service. Possible values are:

- `Reliable` (Reliable Message Delivery), which ensures that each multicast or broadcast message is received as long as the physical network and packet recipients are working, and that the loss of a message is detected. This choice can compensate for brief network failures because it can retransmit a message on request if the first attempt fails. This choice is appropriate when message delivery is expected but some loss can be tolerated. When this quality of service is chosen, an RV session will be used.
- `Distributed Queue` (Distributed Queue Delivery) indicates load balancing should be enabled. This is the default value.

Wire Format

- `ActiveEnterprise XML`, allows you to retrieve data as XML documents and metadata as XML Schemas (XSD).
- `ActiveEnterprise Message` (default), an externally described XML message format supported by the TIBCO Adapter SDK.

See *TIBCO Rendezvous Concepts* for details about levels of service.

Delivery Mode

The delivery mode for the message. There are two options to choose from.

- `Durable` indicates that the service is registered with the JMS server. The JMS server holds messages sent to a durable Subscription Service until they are used by the service. The service may be down and expect to receive its messages when it starts working.
- `Non-Durable` indicates that the service is not registered with the JMS server. The JMS server does not hold messages sent to a non-durable Subscription Service. A non-durable Subscription Service will not receive the messages that arrived at the JMS server while the service was down.

See the *TIBCO Enterprise Message Service User's Guide* for more information.

Connection Factory Type

A message can be published to a topic or sent to a queue.

- `Queue` indicates that a message sent to a queue is consumed by one receiver. Each message has only one receiver though multiple receivers may connect to the queue. The first receiver to access the queue gets the message. The other receivers do not. This messaging model is known as point-to-point.
- `Topic` indicates that a message published to a topic is broadcast to one or more subscribers. All messages published to the topic are received by all services that have subscribed to the topic. This messaging model is known as publish-subscribe.

For details on JMS concepts refer to the *TIBCO Enterprise Message Service User's Guide*.

Request/Response Server Type

Select the supported operation for this Request-Response instance, from the drop-down list. The types of Request-Response configuration are:

- Query Siebel Business Components
- Insert or Update Siebel Business Components
- Invoke Siebel Workflow
- Query Siebel Integration Components
- Insert or Update Siebel Integration Components
- Invoke Business Service

Operation Type

Select the type of operation to be performed on Siebel data. The operation types available are:

- `Insert/Update` Inserts a record if the record does not exist, updates if the record exists.
- `Insert` Inserts a new record.
- `Update` Updates the existing record in the Siebel database.
- `Delete` Deletes an existing record from Siebel database.

4. Click **Apply** to generate the Request-Response Service. Depending on the type of `Request/Response Server Type` you have selected, a new configuration screen with additional parameters is displayed. For example, if `Invoke Siebel Workflow` is selected as the `Request/Response Server Type`, the additional parameters displayed are, `Business Event`, `Integration Object`, `Integration Object Name` and `Workflow Process`. The complete list of additional parameters is given next.

The `Integration Object` and `Integration Object Name` fields appear only when invoking Siebel Workflow.

Integration Object

Select `Yes` if the Siebel workflow is using an integration object.

Integration Object Name

The name of the integration object to be used by the workflow.

Business Event

The name of the Business Event.

Reply Schema Reference

Select a schema from the drop-down list. This is the schema, which will be used by the reply data.

Request Schema Reference

Select a Siebel adapter schema for integration objects from any location in the repository.

Business Service

The name of the Business Service. Click on the **Fetch** button to select from the Business Services in the Siebel repository.

Method Name

The name of the method to be invoked.

Workflow Process

The name of the Siebel workflow process to be invoked.

For `Advanced` tab configuration options, see , Advanced Tab, page 93.

To generate schemas for the various Request-Response server types refer to the following sections of this chapter.

For Querying Siebel Business Component request type and Insert or Update Siebel Business Component request types see:

- Siebel Business Component Configuration, page 122

For Invoking Siebel Workflow request type see:

- Configuring an Adapter Service to Invoke Siebel Workflow, page 141

For Querying Integration Component request type and Insert or Update Integration Component request types see:

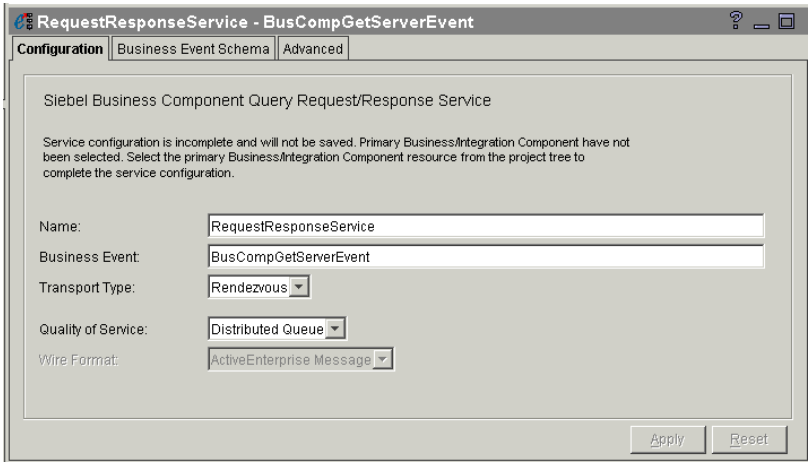
- Siebel Integration Components Configuration, page 134

For Invoking Business Service, see

- Sample Workflow Invocation Using Subscriber, page 146

Sample Request-Response Screen

The following screen shows a Request-Response Service configured to query Siebel Business Component data. Messages are sent using the ActiveEnterprise wire format.



Business Event Schema Tab

For Querying Siebel Business Component request type and for Insert or Update Siebel Business Component request type, refer to the section, Business Event Schema Options, page 127 for Publication Services.

For Siebel Workflow Invocation request type, see Configuring an Adapter Service to Invoke Siebel Workflow, page 141.

For Querying Siebel Integration Component request type and for Insert or Update Siebel Integration Component request type, see , Business Event Schema Tab, page 144.

For Invoking Business Service, see , Sample Workflow Invocation Using Subscriber, page 146.

Request-Response Invocation Service

When running as a Request-Response Invocation Service, the adapter allows a TIBCO Rendezvous or TIBCO JMS application to process the Siebel Business or Integration Component or Non-Siebel Business Component data retrieved from the Siebel system based on the Business Event Schema. This adapter is typically triggered by the **SendReceive** service method of the Custom Siebel Business Service, `EAI TIBCO HTTP Agent` provided by the adapter installation to request data from an external Request-Response service in the form of a Siebel Property Set. To see examples that illustrate the use of the `SendReceive` interface, from TIBCO Designer, refer to **Help>Help For>Siebel Adapter** and select Examples Guide.

You can configure parameters under the following tabs:

- Configuration Tab
- Business Event Schema Options
- Advanced Tab

The `Business Event Schema` tab is available to configure a Request-Response Invocation Service for a Siebel Business Component, Siebel Integration Components and `SendReceive` integration objects. This tab is not available for Non-Siebel Business Component configuration. Information in the `Advanced` tab becomes available after you complete and apply the requested information in the `Configuration` tab.

Setting Request-Response Invocation Configuration Options

This is a standard setting. Request-Response Invocation Service configuration involves specifying a name, quality of service and wire format. A server operation allows the adapter to process the Siebel Business component data retrieved from Siebel system based on the Business Event Schema.

To define invocation server configuration parameters:

1. Drag the **SiebelAdapterConfiguration** icon to the design panel or select the template in the project panel.
2. Drag a **Request-Response Invocation Service** icon to the design panel.
3. Specify the following parameters in the `Configuration` tab.

Configuration Tab

Name

Enter a unique name for the request-reply service within this adapter instance.

Transport Type

Select the transport to be used by the run-time adapter, `JMS` or `Rendezvous`. After selecting the transport, the transport-specific configuration fields display.

The transport can be configured to use a trusted store and identity resource for use in SSL (Secure Sockets Layer) configurations. TIBCO Rendezvous sessions and JMS topics have an SSL configuration field which uses a dialog to perform SSL configuration.

To enable and configure SSL, in the `Project` panel, expand the `Advanced` folder and then expand the `Sessions` folder. Select the TIBCO Rendezvous session or JMS topic and click `Use SSL?`. The SSL configuration options are explained in the online help associated with the session dialog. Click the question mark to display the online help.

On selecting `Rendezvous` as the `Transport Type`, the `Quality of Service` and `Wire Format` drop-down bars appear. On selecting `JMS` as the `Transport Type`, the `Wire Format`, the `Delivery Mode` and `Connection Factory Type` drop-down bar appear.

Quality of Service

The level of service. Possible values are:

- `Certified` (Certified Message Delivery), which guarantees that every certified message reaches its intended recipient in the order sent. The message can be sent across network boundaries, and if a network fails, delivery attempts continue until delivery succeeds or until the message's time limit expires. This is often called guaranteed delivery. When this quality of service is chosen, an RVCM session will be used.
- `Reliable` (Reliable Message Delivery), which ensures that each multicast or broadcast message is received as long as the physical network and packet recipients are working, and that the loss of a message is detected. This choice can compensate for brief network failures because it can retransmit a message on request if the first attempt fails. This choice is appropriate when message

delivery is expected but some loss can be tolerated. When this quality of service is chosen, an RV session will be used.

Transactional (RVTX) quality of service is not supported.

Wire Format

The message format in which request data will be sent.

- `ActiveEnterprise XML`, allows you to retrieve data as XML documents and metadata as XML Schemas (XSD).
- `ActiveEnterprise Message` (default), an externally described XML message format supported by the TIBCO Adapter SDK.

See *TIBCO Rendezvous Concepts* for details about levels of service.

Delivery Mode

An adapter Subscription Service can be durable or non- durable.

- `Persistent` indicates that the message will be available to a JMS client even if the JMS server goes down.
- `Non-persistent` indicates that the message will not be available to a JMS client if the JMS server goes down.

Connection Factory Type

A message can be published to a topic or sent to a queue.

- `Queue` indicates that a message sent to a queue is consumed by one receiver. Each message has only one receiver though multiple receivers may connect to the queue. The first receiver to access the queue gets the message. The other receivers do not. This messaging model is known as point-to-point.
- `Topic` indicates that a message published to a topic is broadcast to one or more subscribers. All messages published to the topic are received by all services that have subscribed to the topic. This messaging model is known as publish-subscribe.

For details on JMS concepts refer to the *TIBCO Enterprise Message Service User's Guide*.

Request/Response Invocation Type

1. Select the type of operation for this Request-Response Invocation Service, from the drop-down list. The types of Request-Response Invocation Service are:
   - Query Siebel Business Components
   - Query Non Siebel Business Components
   - Query Siebel Integration Components
   - Send Receive Integration Objects
2. Click **Apply** to generate the Request-Response Invocation Service. Additional parameters are displayed depending on the `Request/Response Invocation Type` that you have selected. For example, if `Query Siebel Integration Components` is selected as the `Request/Response Invocation Type`, the additional parameters displayed are, `Business Event`, `Request Integration Object Name` and `Reply Integration Object Name`. The complete list of additional parameters is given next.

The `Integration Object` and `Integration Object Name` fields appear only when the reply contains a integration object schema.

UAN schema Support

If you select this field, the reply schema will be in XML.

Integration Object

Select `Yes` if the reply contains an Integration Object schema. If you select `Yes`, the schema in the data section of the Advisory document should match the schema of the Integration Object.

If you select `No`, the reply will either be in XML or in AE format depending on the `UAN schema Support` field. If you have selected `UAN schema Support`, the reply will be in XML, otherwise it will be in AE format.

Integration Object Name

The name of the integration object which is to be a part of the reply.

Business Event

The name of the Business Event.

Request Integration Object Name

The name of the integration object to be used. This field appears only for the `SendReceive` Integration Objects configuration.

Reply Integration Object Name

The name of the integration object, which is returned as part of the reply schema.

Request Schema Reference

Select a schema from the drop-down list. This is the schema, which will be used by the reply data.

You need to configure the custom Business Service parameters for sending the Request-Response Invocation request from the Siebel application to the adapter. Refer to *Using the EAI TIBCO HTTP Agent Business Service, page 193* for more information.

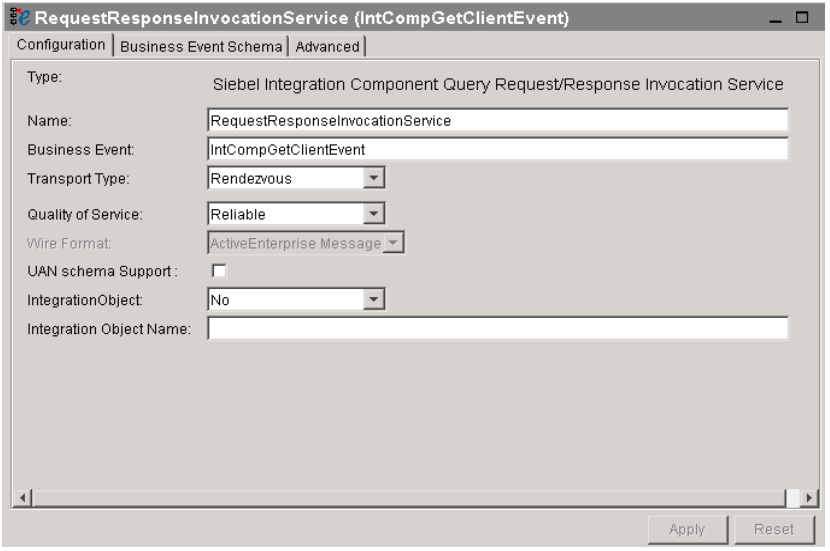
For `Advanced` tab configuration options, see Advanced Tab on page 93.

To generate schemas for the various Request-Response invocation types refer to the following sections listed below:

- , Siebel Business Component Configuration, page 122
- , Non-Siebel Business Component Configuration, page 131
- , Siebel Integration Components Configuration, page 134
- , Sample Workflow Invocation Using Subscriber, page 146

Sample Request-Response Invocation Screen

The following screen shows a Request-Response Invocation Service configured to query Siebel Business Component data using reliable message delivery. Messages are sorted using TIBCO ActiveEnterprise wire format.



Business Event Schema Tab

For Querying Siebel Business Component request type, refer to the , Business Event Schema Options, page 127 for Publication Services.

For Querying Siebel Integration Component request type refer to , Business Event Schema Tab, page 144.

For Sending and Receiving Integration Objects refer to , Sample Workflow Invocation Using Subscriber, page 146.

Saving the Project

Configuration information for an adapter instance and all other parameter settings related to the adapter instance are saved as a project. At any time while configuring the adapter, you can save the associated project. For information about the saving the project, see the *TIBCO Designer User's Guide*. You can access Designer Help from the Help Menu.

Testing the Adapter

One method of testing the adapter is simply to start it after configuring it and check for correct messaging. In this method, you can configure the adapter as desired, then start it as described in Chapter 7, Deploying and Starting an Adapter Using TIBCO Administrator. If your configuration is successful, the adapter will connect to Siebel and messaging will indicate no errors.

Chapter 5 Configuration Options

This chapter explains how to configure Siebel Business Components, Non-Siebel Business Components, Integration Components and the Publishing Agent. Details on how to configure an adapter service to invoke Siebel Workflow and setting multithreading options are also included.

Topics

Siebel Business Component Configuration

You can configure Siebel Business Components to select the target primary and secondary Siebel Business Objects or Components and the Siebel Fields to be included in the Business Event schema for adapter services. The Siebel Business Component configuration is available to all service configurations. The target Siebel Business Object or Component must be set before additional Business Components can be added as children. This allows you to select a subset of the available Siebel fields to be imported or exported by the Siebel adapter services.

Setting Business Component Configuration Options

This is a standard setting. You can specify the target Siebel Business Object and Siebel Business Component.

To configure a Business Component:

1. Drag the **SiebelAdapterConfiguration** icon to the design panel or select the template in the project panel.
2. Set the required adapter configuration parameters. (For details on configuring an adapter, see , Adapter Instance Fields, page 70.)
3. Establish the design-time connection.
4. Drag the required Siebel adapter service icon from the palette panel to the design panel.

   Enter the parameters for the selected service type to generate an adapter service.

   For details on setting configuration parameters for the various services, see:

   — , Publication Service, page 95

   — , Subscription Service, page 100

   — , Request-Response Service, page 106

   — , Request-Response Invocation Service, page 112
5. Click **Apply** to generate the adapter service. The Primary Business Component is added to the project panel and automatically selected.

Specify the following parameters in the `Configuration` tab:

Configuration Tab

`Business Object` — Enter the Business Object or click **Fetch…** to select the name of the Business Object.

`Business Component` — Enter the name of the Business Component or click **Fetch…** to select the name of the Component for the Business Object specified above.

You can enter an expression before clicking **Fetch…** to filter the list of Siebel Business Objects returned. For example, entering 'A' in the Business Object field retrieves all available Siebel Business Objects that start with 'A'.

6. Click **Apply**. The available Siebel fields are retrieved from the Siebel repository through the Siebel design-time connection. The `Siebel Fields` tab then displays with the list of available fields populated.

You cannot have two secondary business components with the same name under one primary component. If you attempt to add a secondary Business Component when another exists at the same level, the following message is displayed:
`The Business Component is already chosen.`

7. Select the fields to be included in the Business Event schema using the following columns in the `Siebel Fields` tab:

Siebel Fields Tab

`Use` — When selected, the Siebel field is to be included in the Business Event schema for the parent adapter service.

`Siebel Field` — Displays the name of the Siebel field.

`Read Only` — The Siebel field is designated as a `Read Only` in the Siebel repository. `Read Only` fields cannot be subscribed.

`Required` — The Siebel field is designated as a `Required` field in the Siebel repository.

`Calculated` — The Siebel field is computed based on other Siebel fields. A calculated field cannot be subscribed.

`MVG` — The Siebel field belongs to a Siebel Multi Value Group.

`MVL Field` — Name of the Siebel Multi Value Link for the field in the above Multi Value Group. A Multi Value field cannot be subscribed. To subscribe to a MVL field, a child MVL Business Component is required.

`Pick List` — Name of the `Pick List` if the field is controlled by a `Siebel Pick List` component.

`Type` — Name of the Siebel type.

`Hidden` — This is selected if the Siebel field is designated as a `Hidden` field in the Siebel repository.

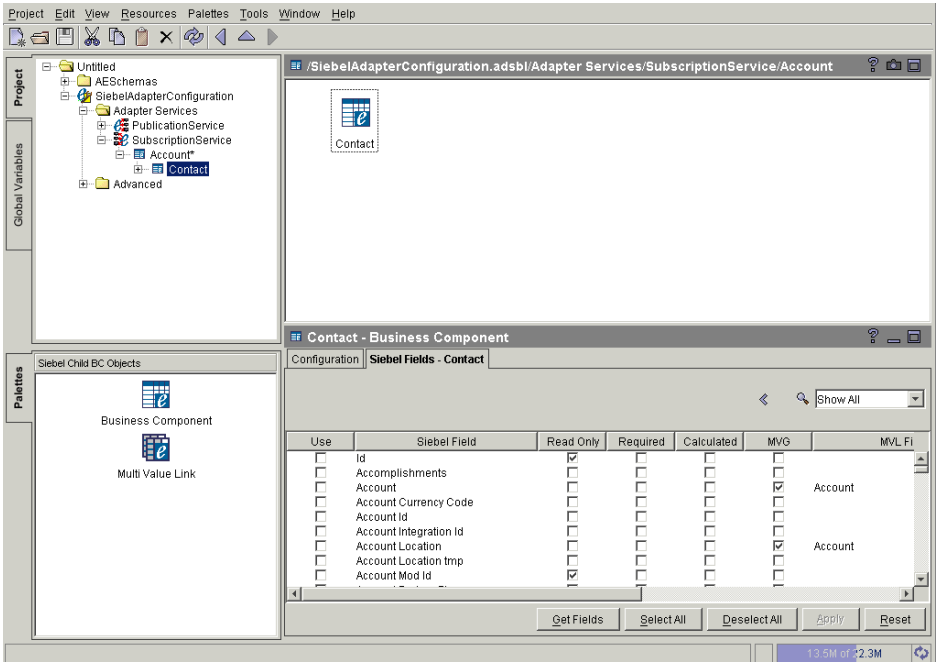
`Inactive` — This is selected if the Siebel field is inactive in the Siebel repository. An inactive field cannot be published or subscribed.

Use the drop-down list at the right top corner to filter the display list, using `Show Required Only` or `Show Read Only` parameters to select the fields. For example, selecting `Show Used Only` in the drop-down list will filter the list to show only fields that had been selected. You can also enter a search expression to filter the `Siebel Field` list. For example, entering `A` in the drop-down list will filter the list to show only fields that start with `A`.

8. Click **Apply**.

Sample Siebel Fields Screen

The following screen shows the `Siebel Fields- Contact` tab where a set of contact fields have been selected for a secondary Business Component in a Subscription Service.

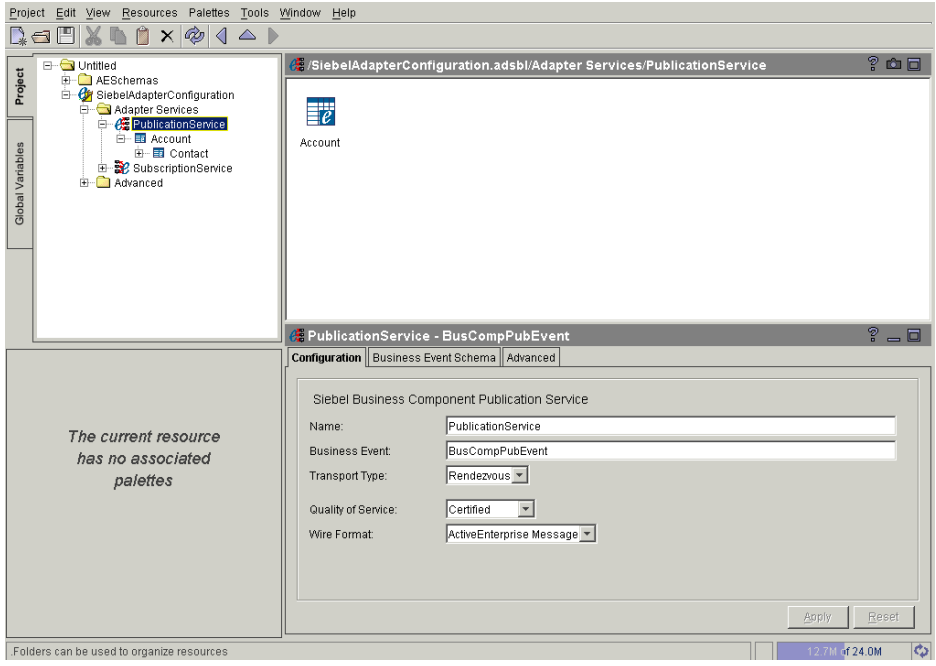


9. Carry out this step to add secondary Business Components else, proceed to , Business Event Schema Options, page 127. To add secondary Business Components as children, ensure that the required primary or secondary Business Component is selected in the project panel and drag the **Business Component** icon to the design panel.

10. Select the required Business Object and Component by entering the fields or use the Fetch buttons.
11. Click **Apply**. The available Siebel fields are retrieved from the Siebel repository through the Siebel design-time connection. The `Siebel Fields` tab then displays with the list of available fields populated.
12. Select the fields to be included in the Business Event schema using columns in the `Siebel Fields` tab. For details, see , Siebel Fields Tab, page 123.

Sample Secondary Business Component Screen

The following screen shows the Business Component hierarchy in the project panel, where the secondary Business Component of a Publication Service is using `Account` as the primary Business Component and `Contact` as the secondary component:



13. Carry out this step to add an MVL to a Business Components else, proceed to , Business Event Schema Options, page 127. To add an MVL, ensure that the appropriate primary or secondary Business Component is selected in the project panel and drag the MVL icon to the design panel.
14. Specify the following parameters for the MVL using the `MVL Configuration` tab.

Configuration Tab

`Multi Value Link` — Enter the name of the MVL or click **Fetch…** to select the name of the MVL.

You can enter an expression before clicking **Fetch…** to filter the list of Siebel Business Objects returned. For example, entering 'A' in the Business Object field retrieves all available Siebel Business Objects that start with 'A'.

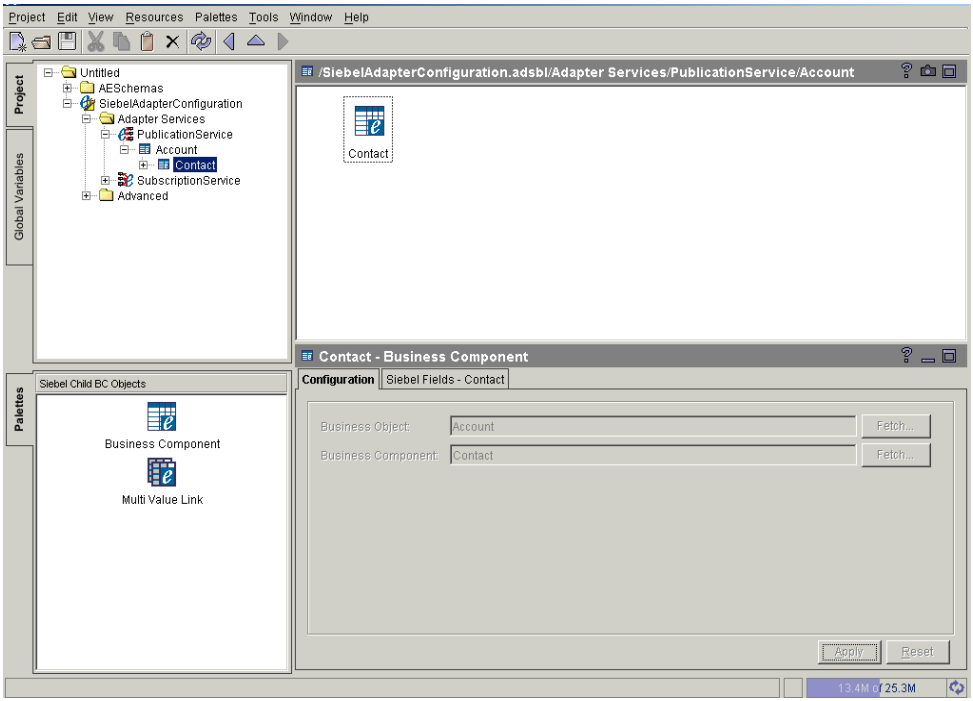
`Destination Business Component` — Identifies the detail Business Component, which supplies the detail records in the master-detail relationship.

For more details on Multi-value link refer to Siebel documentation.

15. Click **Apply** in the `Configuration` tab. The available Siebel fields are retrieved from the Siebel repository through the design-time connection. The `Siebel Fields` tab then displays with the list of available fields populated.
16. Select the fields to be included in the Business Event schema using columns in the `Siebel Fields` tab. For details, see , Siebel Fields Tab, page 123.

Sample MVL Configuration Screen

The following screen shows the Business Component hierarchy in the project panel, where Publication Service is using `Account` as the primary Business Component and `Contact` as the multi-value link:



Business Event Schema Options

When a service is created either to query or to insert or update Siebel Business Components, the fields that are to be used by the service are selected using the `Siebel Fields` tab (see, Siebel Fields Tab, page 123). The fields selected in the `Siebel Fields` tab are used to generate a Business Event schema that represents the Siebel data to be processed by that particular service.

The schema is based on a hierarchy of Siebel Business Components. The hierarchy includes a primary Siebel Business Component that is always created as the `root` of the Business Event schema. The hierarchy can span across multiple Siebel Business Objects that includes secondary Siebel Business Components or Siebel Multi Value Links. Secondary Siebel Business Components and MVLs can be added as children of the primary Siebel Business Component. Refer to , Siebel Business Component Configuration, page 122 for details on how to select the Siebel fields to be included in the Business Event schema.

For example, with an Account as the Primary Business Component, you can configure the Publication Service to publish all the associated Contacts as the Secondary Business Component for that Account. The account can have an Account Category as a multi value link, where Account Category can have multiple values.

Once you have added the required primary Business Component or objects, secondary Business Component or objects and MVLs to the adapter service, the schema selected for each of them is displayed in the Business Event Schema tab, of the adapter service. This tab allows you to set the key fields and match fields for the service.

Use the following steps to set the key field and match field parameters for the fields selected in the schema:

1. Select the adapter configuration in the project panel. Click the Business Event Schema tab.
2. Specify the following parameters in the Business Event Schema tab:

Siebel Business Component/Field — Lists the Business Components configured at each level of the Business Event schema hierarchy and the selected Siebel fields for publication.

Key — Select the check box against a Siebel Business Component or field to define it as a user key. All fields that you select as user keys combine to uniquely define a Siebel record for a Business Component.

For example, the Account Name and Location in the above example are selected as user keys to uniquely define an Account in the Siebel system. The Contact Last Name and First Name are selected as user keys to uniquely define a Contact in the Siebel system. For the receiver of the published message, the selection of key fields provides a guideline on which fields are to be used to represent a unique record in the Siebel system.

Match Field — The name of the parent Business Component field. This parent name defines the parent of the 'parent-child' relationship for all its secondary Business Components. The value you specify in the Match Field column, for a primary Business Component, is used as the default search criteria to retrieve a Business Event for publication. Only one is allowed. Typically, the Match Field for the primary Business Component is the Id field and is used in the Key parameter of the Agent Send method.

In the case of secondary Business Components, it establishes the relationship with the parent Business Component to allow the adapter to retrieve a subset of the Siebel records related to the parent for publication. In the above example, the match field for the Account Id field of Contact is set to match the value for the Id field of the parent Account to retrieve the list of contacts related to the Account. It is possible to select multiple match fields when one source or

destination field pair is inadequate to define the parent-child relationship. By selecting <*literal*> from the dynamic drop-down, you can further filter the result set in the secondary component by entering the literal match expression in the `Literal Match` column.

If no value is provided in any `Match Field` and the `Validate for Deployment` button is clicked. An error message will be displayed.

`Literal Match` — Enter the literal match expression to add filtering criterion for retrieval of secondary Business Components. You can enter character string as the matching string or all acceptable Siebel search specifications when using the reserved `_Eval` syntax. In the above example, the literal match expression is specified as '`_Eval`("*@tibco.com")'. Here, only contacts of the parent account that have an email address that ends with '@tibco.com' will be published. Refer to the Siebel documentation for the syntax to specify a valid Siebel search expression.

`AE Message Field` — Enter an alternate message field name for the Siebel field name to be used while publishing.

`Formatted` — Select the required check box to publish messages in Siebel formatted form. If this is selected, the adapter retrieves the Siebel field in the formatted form for publication.

`Default` — Enter the default value of the Siebel field to be published when data is either empty or null in the Siebel system.

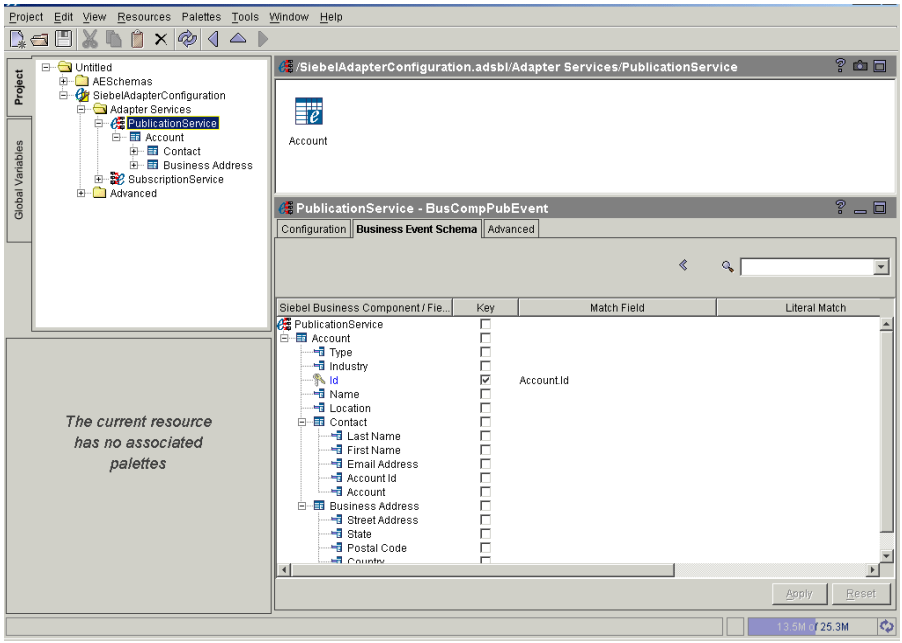
3. Click **Apply**. The adapter service is now ready to carry out operations using the appropriate Siebel Business Components.

Reply from Siebel Application after INSERT, UPDATE or DELETE

The Siebel application sends back the data with the status of the operation. For more details, refer to , Structure of the Data Section for Different Operations, page 393.

Sample Business Event Schema Screen

In the following screen, a Publication Service that publishes a Siebel Account and all the associated `Contacts` and `Business Addresses` is created.



Non-Siebel Business Component Configuration

This section explains how to send and receive non-Siebel Business Components from and to the Siebel system using the adapter. The adapter allows you to send and receive data that does not reside in the Siebel database. This is non-Siebel data that can be sent from and to a Siebel system.

This functionality is available in the following services:

- Publication Service
- Request-Response Invocation Service

Although data with multiple parent or child records can be received, it is not possible to send data in such a structure. Data that is published or used to make a request on an external application must be a Flat Siebel Property Set. Effectively, it can have Name Value pairs that are at the same level.

Configuring a Service for Non-Siebel Business Components

Once you have configured the adapter and set the required configuration parameters (See, , Adapter Instance Fields, page 70), use the following steps to configure a Publication or Request-Response Invocation Service to support non-Siebel Business Component functionality.

1. Select the adapter configuration in the project panel.
2. Drag a **Publication Service** or **Request-Response Invocation Service** icon to the design panel.
3. Enter the `Service Type` as `Non Siebel Business Component`. Enter the parameters for the selected service.

   For details, see , Publication Service, page 95 and , Request-Response Invocation Service, page 112.
4. The `Business Event` field is added to the `Configuration` tab. Enter the name of the business event. Other fields remain the same.
5. Click **Apply**. You are prompted to regenerate the business event message schema. Click **OK**.

Sample Non-Siebel Business Component Configuration Screen

This screen shows the parameters for a Non-Siebel Business Component configuration.

Using the Business Event

For all Non-Siebel Business Component business event types, the adapter bypasses the Siebel database. Any information sent through this event is not validated or queried against the Siebel database.

The Business Service accepts data as a Single Key Property Set or a Multiple Key Property Set. Data to be published is sent as a Siebel Property set. You must create this property set.

For example, you may need to request data from or publish data to an external database using a single Name Value pair. In this case the Key is sent as part of the property set as shown below.

Property sets are created in Siebel, either using a Business Service, Business Component scripts, or in the form of an XML file as shown in the sample below. The XML file can then be converted into a property set using appropriate Business Service. For details on converting a property set using Business Services, refer to your Siebel documentation.

```
<?Siebel-Property-Set EscapeNames="true" ?>
<PropertySet OperationType="upsert"
EventName="MyEvent"
KeyName = "Name"
KeyValue = "A. K.*"
</PropertySet>
```

If you need to use more than one Name Value pair, you need to send the Property Set in the format shown below:

```
<?Siebel-Property-Set EscapeNames="true" ?>
<PropertySet OperationType="upsert"
EventName="MyEvent"
```

```
NumInputKeySets="2">
<InputKeySets
 Name="A. K.*"
 Location="HQ*">
</InputKeySets>
</PropertySet>
```

The parent Property Set in the example contains the event name `MyEvent` and needs to send data that is not in the Siebel database. This data could be hard coded or extracted from the Siebel GUI.

The parent contains:

- Event Name
- Operation Type
- Number of fields is set as `NumInputKeySets` in the parent.
- Number of Name Value pairs in the child Property Set

`EAI TIBCO HTTP Agent` Business Service parses the XML and generates an Output Property Set, which is sent to the adapter.

Siebel Integration Components Configuration

This section explains how to send and receive data for integration objects into the Siebel system using the adapter. This functionality is available for all the services.

The adapter does not query integration objects directly. The data received to populate integration objects in Siebel must be in the form of Siebel property sets. It cannot contain external data in any other form.

The adapter allows data to be imported into the Siebel system, again in the form of property sets. This data is sent by external applications, which the adapter queries.

Since data must be formatted as a Siebel Property Set in order to populate integration objects, the adapter converts the incoming message data to Siebel Property Sets. Siebel provides a Business Service called `EAI Siebel Adapter Service`. This service receives the Siebel property set from the adapter, as input parameters, and populates the data into integration objects.

To send out data in the same form as the integration object, you will also need to configure a schema or export the schema from another application, which contains the schema. The integration object schema will contain the same Business Components and fields as the integration object. Configuring integration object schema using TIBCO Designer is explained below. To see how the adapter publishes data from integration objects, use the Workflow Export example explained in the next section.

To run an example using integration objects, see the *TIBCO Adapter for Siebel Examples Guide*.

- An incoming message to a Subscription Service must contain user keys defined in Siebel for the integration components configured.
- The XML tag used to update the integration object must be specified in the Siebel repository.

Configuring a Service for Integration Components

Once you have configured an adapter and set the required configuration parameters (See, , Adapter Instance Fields, page 70), use the following steps to configure a service to support integration objects.

Before you configure an adapter service for integration components, you must set the global variable `SiebelVersion` with the version of the Siebel Application being used. If the Siebel Version is 6.x, the Global Variable will have the value `6` and if the Siebel Version is 7.x, the global variable should have the value `7`. The default value is `7`.

1. Select the adapter configuration in the project panel then drag the required adapter service icon to the design panel.
2. In the `Configuration` tab that displays, enter the parameters for the selected service type to generate an adapter service. Select the `service type` as `Integration Components`.

   For details on setting configuration parameters for the various services, see:

   — , Publication Service, page 95.

   — , Subscription Service, page 100.

   — , Request-Response Service, page 106.

   — , Request-Response Invocation Service, page 112.
3. Click **Apply** to generate the adapter service. The `Primary Integration Component` is added to the project panel and automatically selected.
4. Specify the following parameters in the `Configuration` tab:

Configuration Tab

The `Configuration` tab consists of:

`Integration Object` — Enter the name of the Integration Object or click **Fetch…** to select the name of the Integration Object.

`Integration Component` — Enter the name of the Integration Component or click **Fetch…** to select the name of the Component for the Integration Object specified above.

You can enter an expression before clicking **Fetch…** to filter the list of Siebel Integration Objects returned. For example, entering 'A' in the Integration Object field retrieves all available Integration Objects that start with 'A'.

5. Click **Apply**. The available Siebel fields are retrieved from the Siebel repository through the design-time connection. The `Siebel Integration Fields` tab then displays with the list of available fields populated.
6. Select the fields to be included in the Business Event schema using the following columns in the `Siebel Integration Fields` Tab:

Siebel Integration Fields Tab

`Siebel Integration Fields` tab contains the following properties of the Integration component.

`Use` — When selected, the integration field is to be included in the integration components schema for the parent adapter service.

`XML tag` — The XML name of the integration field in the Siebel Repository. This is a display field.

`Required` — When displayed as selected, the Siebel integration field is designated as a `Required` field in the Siebel repository. This is a display field, the values for this field are provided from Siebel.

`inactive` — If already selected it indicates that the integration field is inactive in the Siebel repository. An `Inactive` field cannot be published or subscribed.

Use the drop-down list at the right top corner to filter the display list. Choose from `Show Required`, `Show Used`, `Show Inactive` and `Show All` parameters to select the fields. For example, selecting `Show Used` in the drop-down list will filter the list to show fields that had been selected. You can also enter a search expression to filter the `Siebel Field` list. For example, entering `A` in the drop-down list will filter the list to show only fields that start with `A`.

`Name` — Displays the name of the integration components field.

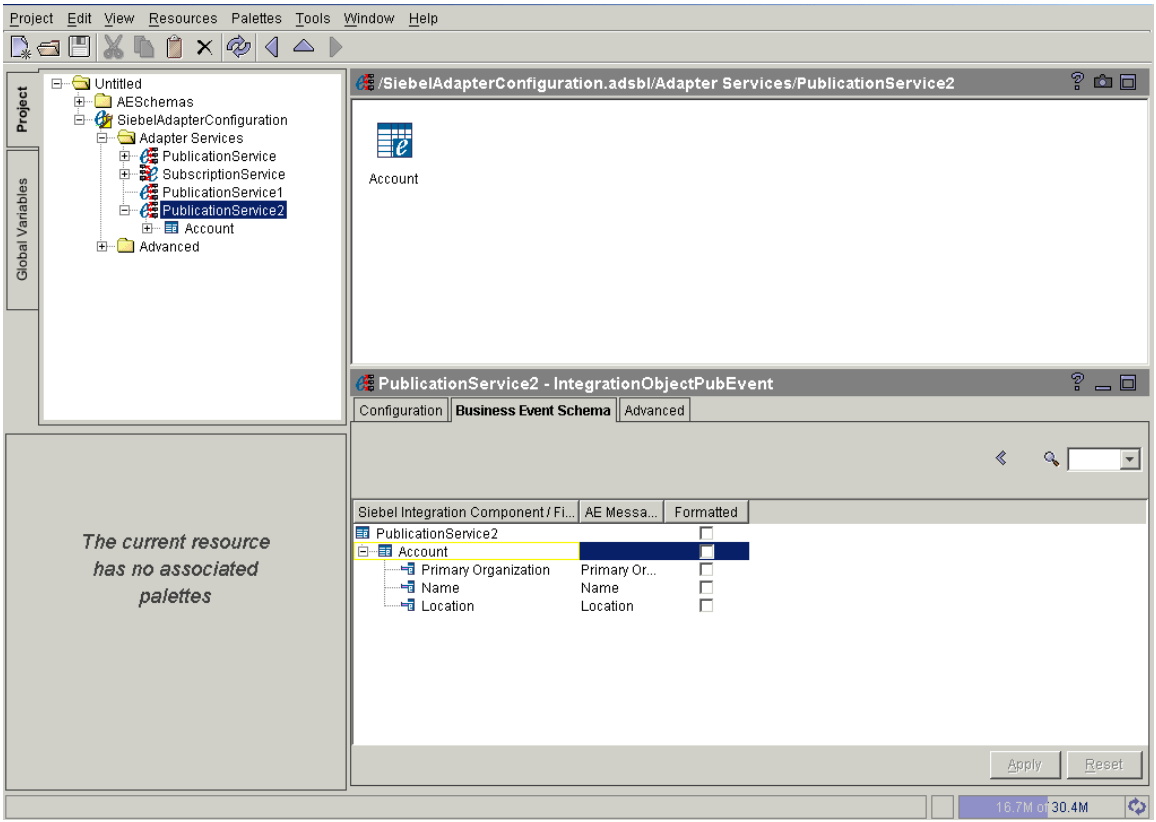
`User key` — Displays the name of the user key field in the Siebel repository of which this field is a part.

In Siebel, integration component's fields are grouped together as user keys. This helps to identify a single record in an integration component for an integration object. There may be multiple user keys for a single integration component. Each field may be present in multiple user keys. The palette does not display all the information required for user keys. Please verify with Siebel Tools to ensure you select the proper user key.

7. Click **Apply**.

Sample Siebel Integration Fields Screen

The following screen shows the `Siebel Integration Fields` tab where the schema of the `Account` component has been retrieved for processing by the service.

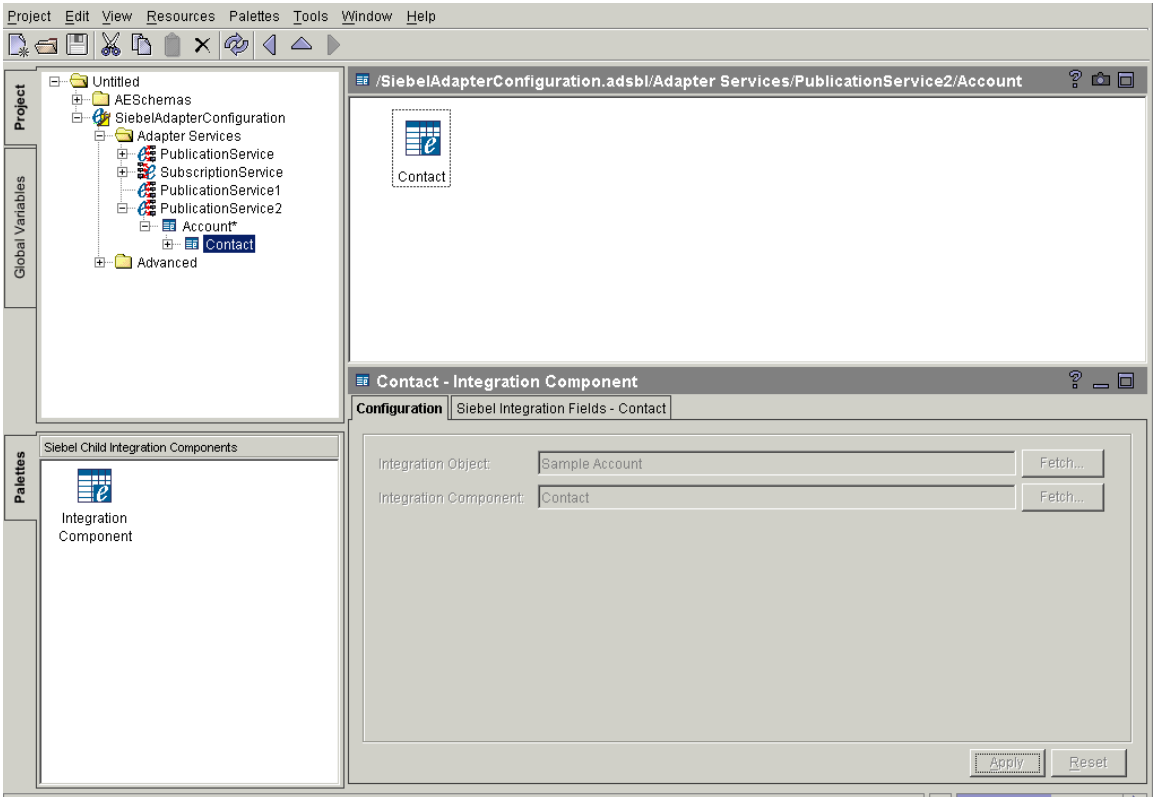


8. Carry out this step to add secondary integration components, else, proceed to , Business Event Schema Options, page 127. You can add secondary integration components only if child schema has been predefined for that particular Siebel Integration Component. To add secondary integration components as children, ensure that the primary or integration component is selected in the project panel and drag the **Integration Component** icon to the design panel.
9. Select the integration object and integration component by entering the fields or use the **Fetch** button.
10. Click **Apply**. The available Siebel fields are retrieved from the Siebel repository. The `Siebel Integration Fields` tab then displays with the list of available fields populated.

11. Select the fields to be included in the Business Event schema using columns in the `Siebel Integration Fields` tab. For details, see , Siebel Integration Fields Tab, page 136.

Sample Secondary Integration Component Screen

The following screen shows the integration component hierarchy in the project panel, where the primary integration component, `Account` has a secondary integration component, `Contact`.



Business Event Schema Options

When a service is created either to query or to insert or update Siebel Integration Components, the fields that are to be used by the service are selected using the `Siebel Integration Fields` tab (see, Siebel Integration Fields Tab, page 136). The fields selected in the `Siebel Integration Fields` tab are used to generate a Business Event schema that represents the Siebel data to be processed by that particular service.

The schema is based on a hierarchy of Siebel Integration Components. The hierarchy includes a primary Siebel Integration Component that is always created as the `root` of the Business Event schema. The hierarchy can span across multiple Siebel Integration Components that includes secondary Siebel Integration Components. Secondary integration components can be added only if a child schema has been predefined in Siebel for that particular Siebel Integration Component.

For example, with an `Account` as the Primary Integration Component, you can configure the Publication Service to publish all the associated `Contacts` as the Secondary Business Component for that `Account`.

Once you have added the required primary integration component and secondary integration component to the adapter service, the schema selected for each of them is populated in the `Business Event Schema` tab of the adapter service. This tab allows you to specify if the schema used by the service is to be formatted.

Use the following steps to change the parameters for the integration component fields:

1. Select the adapter configuration in the project panel. Click the `Business Event Schema` tab.
2. Specify the following parameters in the `Business Event Schema` tab:

   `Siebel Integration Component/Field` — Lists the integration components configured at each level of the Business Event schema hierarchy and the selected Siebel fields to be processed by the adapter service.

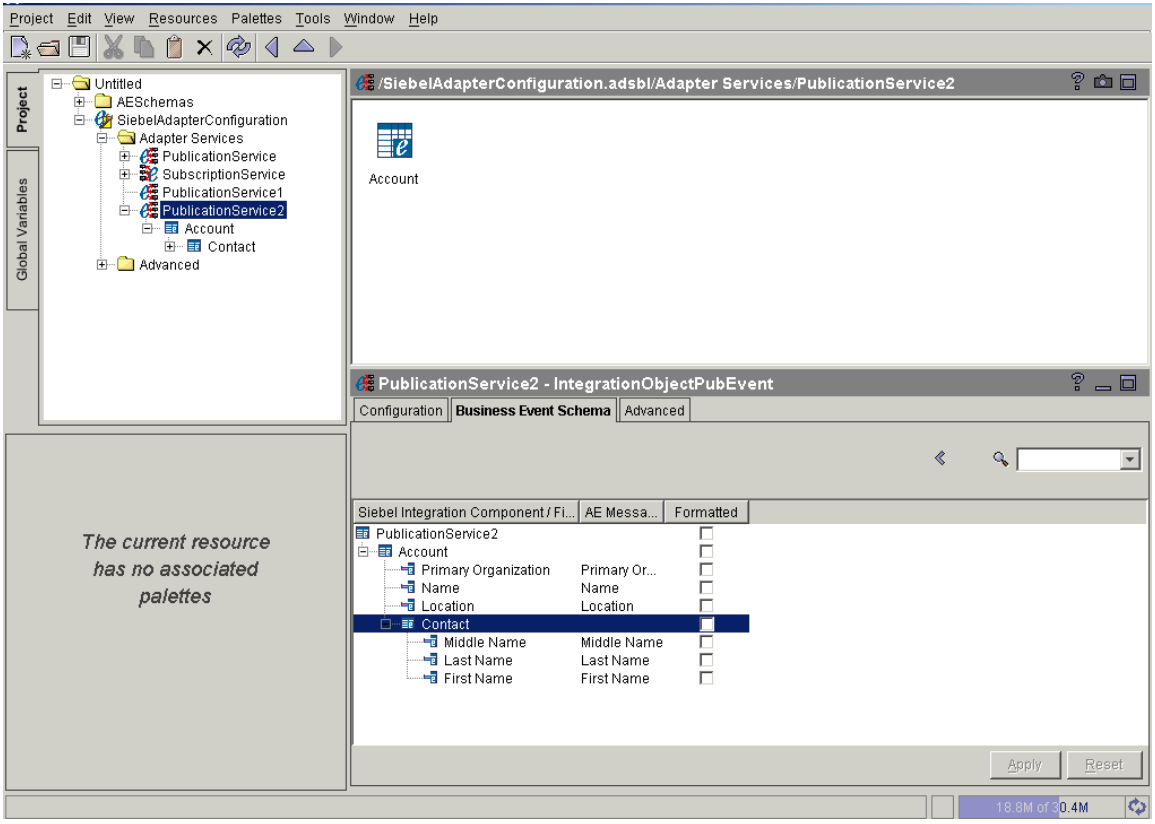
   `AE Message Field` — Enter an alternate message field name for the Siebel field name to be used while publishing.

   `Formatted` — Select the required check box to publish messages in Siebel formatted form. If this is selected, the adapter retrieves the Siebel field in the formatted form for publication.

3. Click **Apply**. The adapter service is now ready to carry out operations using the appropriate Siebel Integration Components.

Sample Business Event Schema Screen

The following screen shows the selected schema for a Publication Service that uses the `Sample Account` integration object and an associated secondary integration component.



Reply from Siebel Application after INSERT, UPDATE or DELETE

The Siebel application sends back the data with the status of the operation. For more details, refer to , Structure of the Data Section for Different Operations, page 393.

Configuring an Adapter Service to Invoke Siebel Workflow

The adapter can be used to directly invoke a pre-configured Siebel Workflow through the adapter's Subscription Service or Request-Response Service. This section presents an overview of the Siebel workflow process and how the Subscription Service and Request-Response Service can be used to invoke it. It also explains how to configure a Business Event. It explains how the subscriber converts incoming TIBCO ActiveEnterprise format data into Siebel Property Sets. For an example demonstrating the same, see *The adapter Examples Guide*.

Siebel Workflow Overview

Siebel workflow is a business application that can be customized to manage and enforce your business processes. Siebel workflow processes allow you to define your company's business processes using a flowcharting interface. These business processes may include:

- Sub-processes
- Decision points
- Tasks

  Predefined tasks — These tasks include updates to the Siebel databases, notifications (such as e-mail or page), integration messages to external systems, and calls to invoke server tasks.

  Custom tasks — These are tasks defined by the customers using Siebel VB or Siebel eScript.

Siebel workflow processes can be triggered or started by events in the Siebel application or external systems. Within the Siebel application, a process can be triggered from a workflow policy, an insert or update operation on a Business Component, a user interface event (such as a button click), or a server component.

By using the Siebel Object Interfaces, workflow processes can be triggered from anywhere in the Siebel application or from external programs.

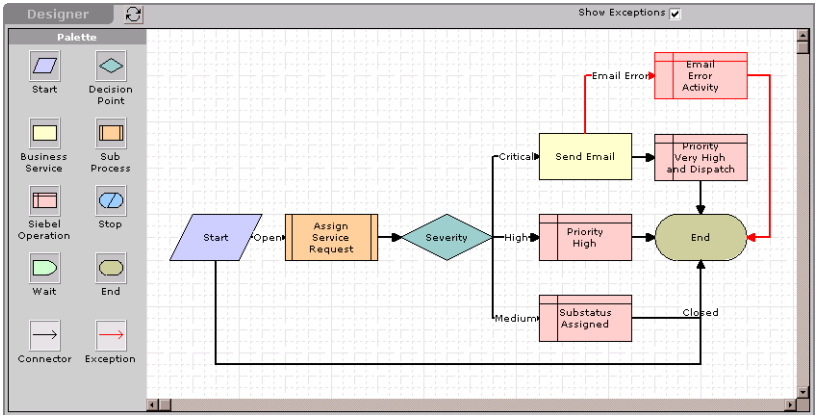
Refer to the *Siebel Workflow Guide* in your Siebel documentation for details.

Create Workflow Process

The adapter's Subscription Service or the Request-Response Service uses the Siebel Business Service Object Interface to create a Siebel Workflow Process Manager and to invoke the Siebel Workflow Process.

Refer to the *Siebel Workflow Guide* in your Siebel documentation for details.

Figure 7 Sample Siebel Workflow Process



This instance of the Workflow Process Manager can either be created on the Siebel server or in the adapter. As a result, the workflow process either runs on the Siebel Server or in the adapter process space. By default, the process runs in the adapter. To run it on the server, select the `Server Request` flag on the **Subscription Service** resource's `Configuration` tab during configuration.

In TIBCO Designer, you can configure the Subscription Service to invoke an existing workflow process. The workflow process can run either on the Siebel server or the Siebel Object Manager, within the process space of the Siebel Subscriber component.

The next sections describe the following:

- Configuring a Business Event in the Subscription or Request-Response Service to invoke a Siebel workflow process.
- The stages in a sample workflow invocation once it is deployed.

Configuring a Business Event to Invoke Siebel Workflow

In the Subscription or the Request-Response Service, you can configure a Business Event to invoke a Siebel Workflow Process.

A pre-requisite to configuring a service to invoke workflow is that the workflow process definition should already exist on the Siebel Server

Once you have configured the adapter and set the required configuration parameters (see, , Adapter Instance Fields, page 70), use the following steps to configure a service to invoke the Siebel Work flow.

1. Select the adapter configuration in the project panel then drag the required adapter service icon to the design panel.
2. In the `Configuration` tab that displays, enter the parameters for the selected service type to generate an adapter service. Select the `Service type` as `Siebel Workflow Invocation` and click **Apply**.

   For details on setting configuration parameters for the various services, see:

   — , Subscription Service, page 100

   — , Request-Response Service, page 106
3. In addition to the `Name`, `Quality of Service` and `Wireformat` fields, the following fields display in the `Configuration` tab, specify the required fields:

Configuration Tab

`Business Event` — Enter a unique name for the event. A default name is displayed.

`Workflow Process` — The workflow process that is to be invoked when the adapter receives a message for the above Business Event. Click **Fetch...** to select a workflow process.

`Server Request` — When selected, the workflow process runs in the Siebel Server process space. If it is unselected, it runs within the Object Manager process space. By default this option is unselected.

`Asynchronous Request` — Select the check box if you want to invoke the workflow asynchronously. If you select this check box, the adapter will not wait for the reply from the Siebel workflow. The adapter will reply with the Asynchronous Workflow Request Id.

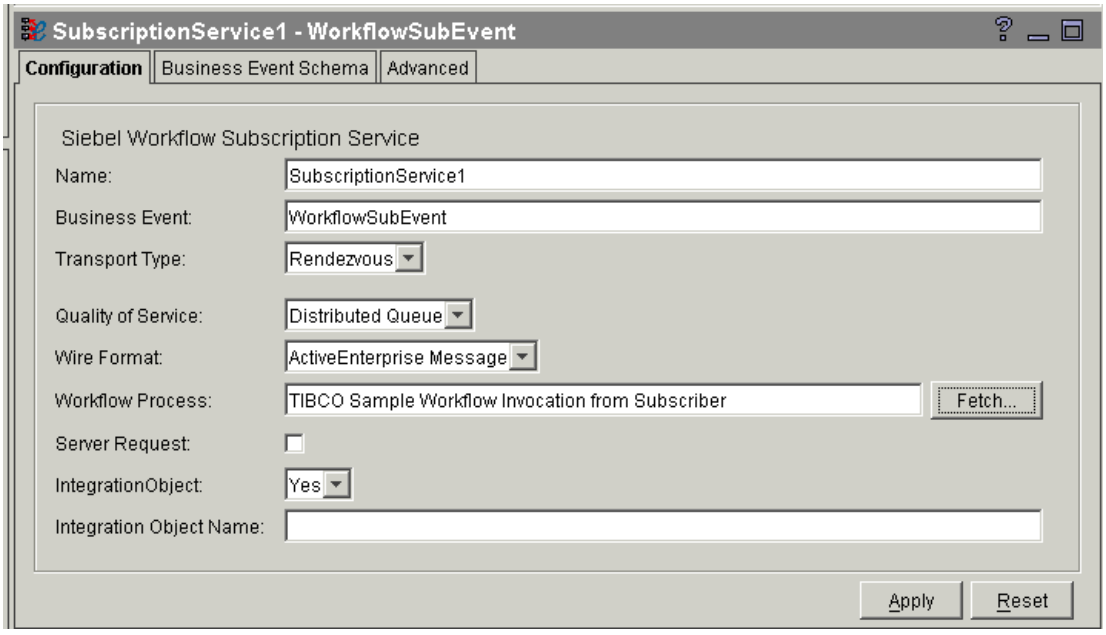
`Integration Object` — Indicate if an integration object is to be populated by the workflow, by selecting a value from the drop-down list.

`Integration Object Name` — Name of the integration object. This parameter is required only if `Yes` has been selected as the value for the `Integration Object` parameter.

Sample Siebel Workflow Invocation Configuration Screen

The following screen shows a Subscription Service configured to invoke the `TIBCO Sample Workflow Invocation from Subscriber` workflow.

Figure 8 Business Event: SiebelWorkflowProcess



4. Click **Apply**. If you have specified an integration object to be used by the service, a pop-up window opens asking you whether you want to generate the integration object schema. If you click `Yes`, a configuration tab for schema generation displays. For details on selecting an integration object, integration component and the schema required for that particular adapter service see, Configuring a Service for Integration Components, page 135.

Business Event Schema Tab

When a Subscription Service or a Request-Response Service is created to invoke a Siebel Workflow, and an integration object is used, the required business event schema is generated.

Use the following steps to specify if the schema is to be formatted:

1. Select the adapter configuration in the project panel. Click the `Business Event Schema` tab.

2. Specify the following parameters in the `Business Event Schema` tab:

   `Siebel Integration Component/Field` — Lists the Integration Component configured at each level of the Business Event schema hierarchy and the selected Siebel fields for subscription.

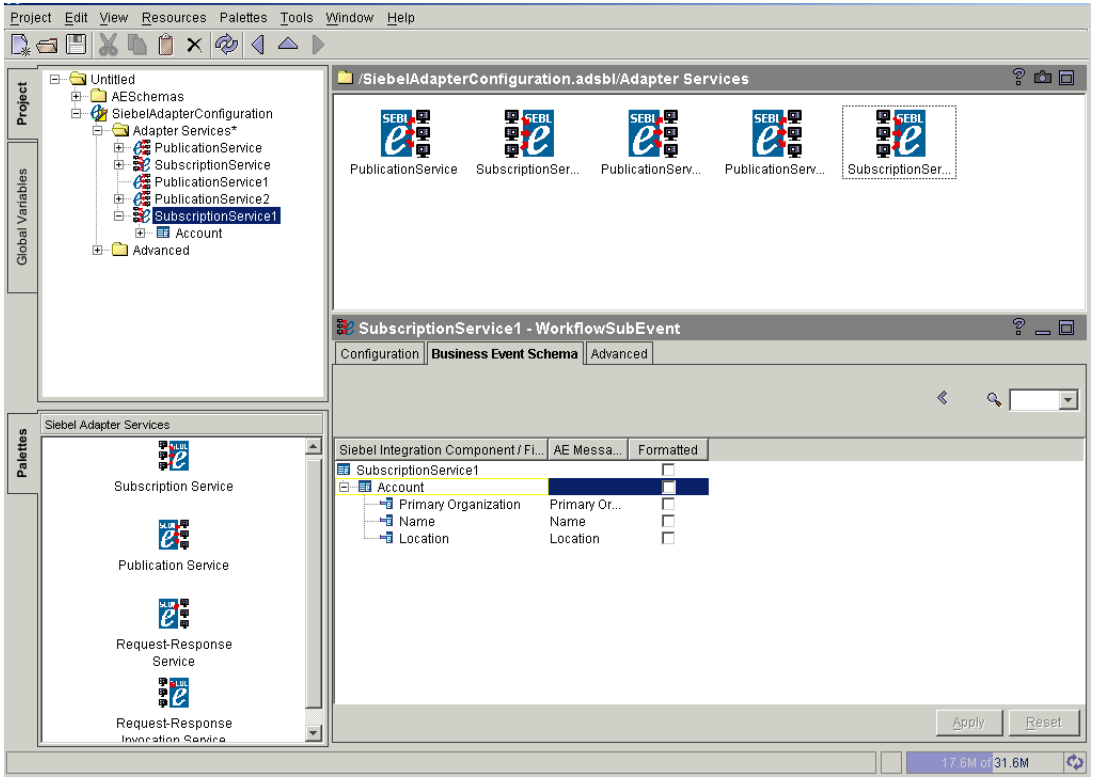
   `AE Message Field` — Enter an alternate message field name for the Siebel field name while subscribing.

   `Formatted` — Select this check box to subscribe messages in the Siebel format. The adapter is instructed to set a value for the Siebel field in the formatted form for subscriptions.

3. Click **Apply**. The adapter service is now ready to carry out operations using the Siebel Workflow Invocation.

Sample Business Event Schema for Siebel Workflow Invocation

The following screen shows the schema selected for a Subscription Service that is configured to invoke workflow and is also associated with an integration object.



Sample Workflow Invocation Using Subscriber

The following section demonstrates the flow of events when a workflow is invoked using a subscriber. An external application sends a business event to the subscriber, which process it and sends it to Siebel workflow. The steps involved are as follows:

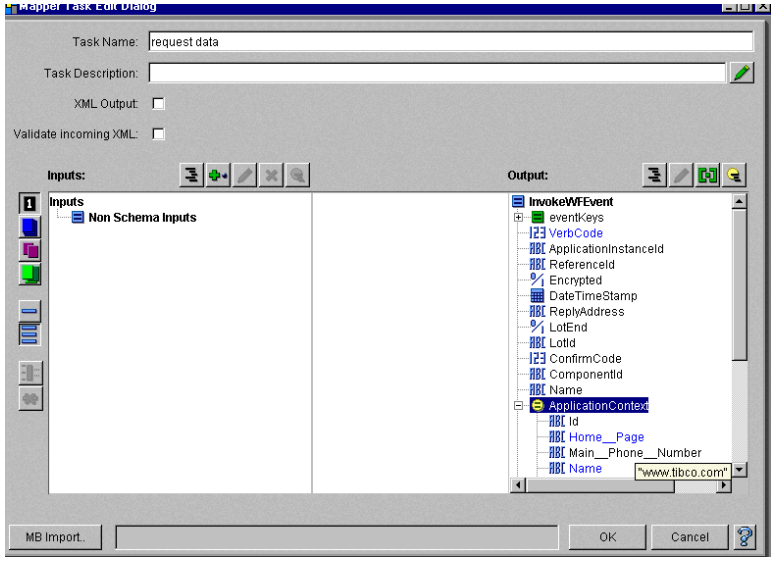
1. The external application invokes the adapter (see, Invoking the Adapter using TIBCO IntegrationManager, page 146).
2. External data sent in the context of the application sending the message, is converted into an equivalent Siebel Property Set (see, Converting a Message to a Siebel Property Set, page 147).
3. The Siebel Property Set is sent to the Siebel workflow (see, Passing a Message into the Siebel Workflow Process, page 150).
4. The Siebel workflow converts the Property Set data into XML schema.

You can also write a custom Business Service to parse the Property Set, which is the input used by the subscriber or Request-Response to invoke workflow. For details, see Writing a Custom Business Service, page 151.

Invoking the Adapter using TIBCO IntegrationManager

This example demonstrates how TIBCO IntegrationManager sends data in the application context to the adapter. The TIBCO IntegrationManager transformation example in Figure 9 illustrates the attribute `ApplicationContext` for the class schema for the `InvokeWF` Business Event. The `ApplicationContext` attribute is substituted by a class schema, to pass data on a list of accounts with the associated contacts and business addresses. At runtime, the list of accounts with the associated contacts and business addresses are converted into a Siebel Property Set. This is the input process property data for the Siebel Workflow process.

Figure 9 TIBCO IntegrationManager Transformation



Reply from the workflow

If the adapter service is configured to invoke a workflow synchronously, it will receive the complete reply from the workflow in the reply advisory document. Configure the workflow invocation process (TIBCO BusinessWorks or TIBCO IntegrationManager process) to handle the reply. The reply received will be in XML format. You can parse the reply for specific fields as required. Refer to the section , Structure of the Data Section for Different Operations, page 393 for more information.

Converting a Message to a Siebel Property Set

The adapter internally converts the schema data in the `ApplicationContext` attribute into an equivalent Siebel Property Set based on the following rules:

Schema Data to Property Set Conversion Rules

- The *type* of the Siebel Property Set root is set to '**TibcoMessage**'.
- The *property* '**MessageId**' is generated upon each creation.
  - The property '**MessageId**' is represented as an attribute for the XML element tag for '**TibcoMessage**'.

- Each message *sequence* is a new child Siebel Property Set of type equal to the name of the sequence attribute.
  - Each message in the sequence is a new child Siebel Property Set of type equal to the name of the reference schema class.
- Each *field* is a new property name or value pair for the message in the sequence.

Difference between TibcoMessage and Siebel Message

The *type* for Property Set gets generated as `Siebel Message`, if integration schema is used in a workflow invocation. Otherwise *type* is set as `TibcoMessage`. You should use the *type* for the Property Set accordingly in the Siebel workflow.

Sample TIBCO Message Schema Diagrams

The following diagrams illustrate the definition of a TIBCO message schema stored in the repository and an instance that is converted into the equivalent Siebel Property Set.

Figure 10 Sample ActiveEnterprise Message Schema Definition

```
- <SampleAccountIntgObject>
  - <class name="businessDocument/SampleAccountIntgObject">
      <attribute name="ListofSampleAccount" class="sequence
        [Account]" />
    </class>
  - <class name="Account">
      <attribute name="Name" class="string" />
      <attribute name="Location" class="string" />
      <attribute name="Organization" class="string" />
      <attribute name="HomePage" class="string" />
      <attribute name="ListOfBusinessAddress" class="sequence
        [BusinessAddress]" />
      <attribute name="ListOfContact" class="sequence[Contact]" />
    </class>
  - <class name="Contact">
      <attribute name="LastName" class="string" />
      <attribute name="FirstName" class="string" />
      <attribute name="MiddleName" class="string" />
      <attribute name="Account" class="string" />
      <attribute name="AccountLocation" class="string" />
    </class>
  - <class name="BusinessAddress">
      <attribute name="City" class="string" />
      <attribute name="Country" class="string" />
      <attribute name="StreetAddress" class="string" />
      <attribute name="State" class="string" />
      <attribute name="PostalCode" class="string" />
    </class>
  </SampleAccountIntgObject>
```

Figure 11 Sample Siebel Property Set Converted from an ActiveEnterprise Message

```
<?Siebel-Property-Set EscapeNames="true" ?>
- <PropertySet FileName="C:\propertySetData.xml">
  - <TibcoMessage MessageId="O8M--6--CoonkUtQ--Ib0a-/W-N6o">
    - <ListofSampleAccount>
      - <Account Name="TIBCO Software Inc." HomePage="www.tibco.com"
          Location="Palo Alto">
        - <ListOfBusinessAddress>
            <BusinessAddress StreetAddress="3650 Porter Drive"
              PostalCode="94304" City="Palo Alto" Country="USA"
              State="CA" />
          </ListOfBusinessAddress>
        - <ListOfContact>
            <Contact Account="TIBCO Software Inc." AccountLocation="Palo
              Alto" FirstName="Paul" LastName="Smith" />
          </ListOfContact>
        </Account>
      </ListofSampleAccount>
    </TibcoMessage>
  </PropertySet>
```

For an example on invoking a Siebel Workflow from the Subscriber, see the *The adapter Examples Guide*. You can access help from **Help>Help For>Siebel Adapter.**

Passing a Message into the Siebel Workflow Process

When the Subscription Service configuration is saved in the repository, each `Business Event` is stored as a `schema` class that derives from the super class `baseBusinessDocument`. In TIBCO Designer, these reside in the following folder: `tibco/public/class/ae/baseDocument/baseBusinessDocument`

Siebel Subscription Service relies on this base schema class definition to pass data from external systems into the Siebel Workflow Process as workflow process properties.

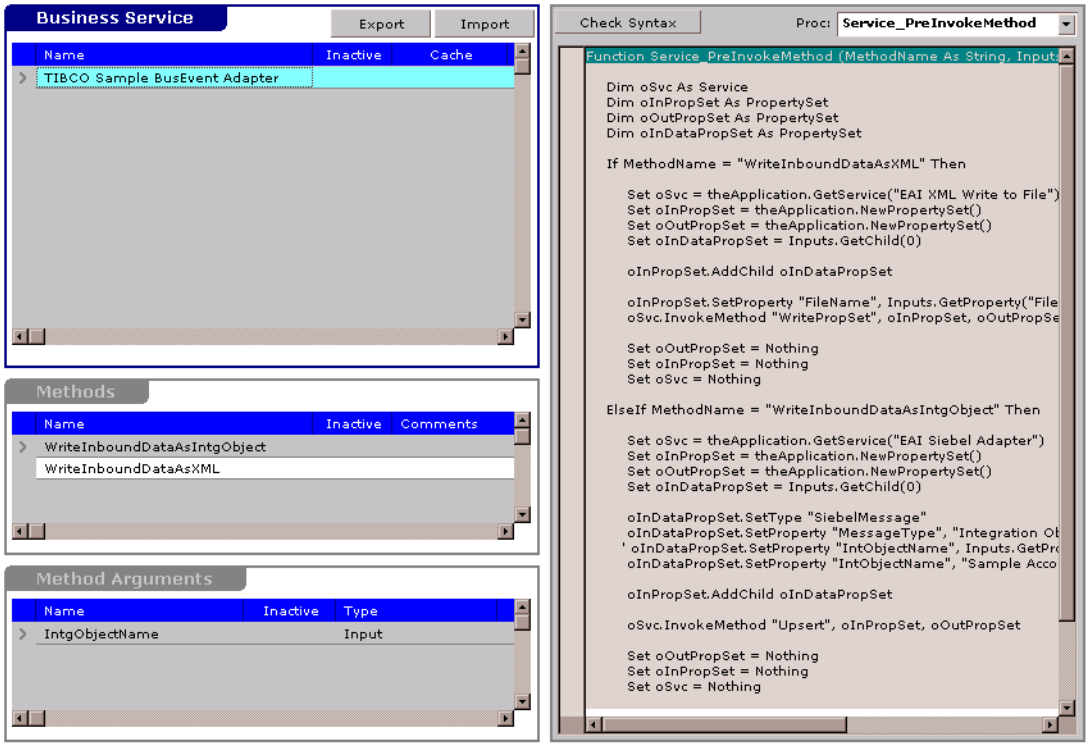
Before the Subscription Service invokes the workflow process, it creates the input workflow process property. The Subscriber uses the `ApplicationContext` attribute, of type `Any` in the definition of the `baseBusinessDocument` to create the input workflow process property. External systems can substitute this attribute with a class schema definition during design-time and populate it with the external data during runtime.

Writing a Custom Business Service

This example uses the converted data (the external data that is converted into a Siebel Property Set) to create an XML file using a supplied Siebel Business Service. However, in an actual integration environment, you could create a custom Siebel Business Service using Siebel VB or eScript to process the incoming data as a Siebel Property Set. By adding the input Siebel Property Set, **TibcoMessage** as the input argument for a service method invocation of the custom Siebel Business Service, it will appear as a child Property Set in the Inputs Property Set for the service method. You can access help from **Help>Help For>Siebel Adapter**.

The following sample VB script for a custom Business Service illustrates how to access the incoming data:

Figure 12 Sample Custom Business Service Siebel VB



Configuring Adapter Services for Siebel Universal Application Network

Universal Application Network (UAN) business processes have been initiated by Siebel Systems as a means to integrate business processes across a variety of disparate applications. The adapter now meets UAN standards for the following adapter services:

- Publication Service
- Subscription Service
- Request-Response Service
- Request-Response Invocation Service

Setting Publication Configuration Options

Publication Service configuration involves specifying a name, quality of service and wire format. You can configure the Request-Response Invocation Service for Siebel Universal Application Network as described in the following steps:

For using the Publication Service of type Send Complete Integration Object, the Integration Object XML to be sent on HTTP port should be generated using XML converter service. Unable to get the reply using Send/Receive function of the adapter on page 346.

To define invocation server configuration parameters:

1. Drag the **SiebelAdapterConfiguration** icon to the design panel or select the template in the project panel.
2. Drag a **Publication Service** icon to the design panel.
3. Specify the following parameters in the `Configuration` tab.
   - — Select appropriate values for `Name`, `Transport Type`, `Wire Format`, `Quality of Service`, `Connection Factory Type` and `Delivery Mode` depending on `Transport Type`.
   - — Select `Send Complete Integration Object` for `Publication Type`.
4. Click **Apply**.
5. Specify the following parameters in the `Configuration` tab:

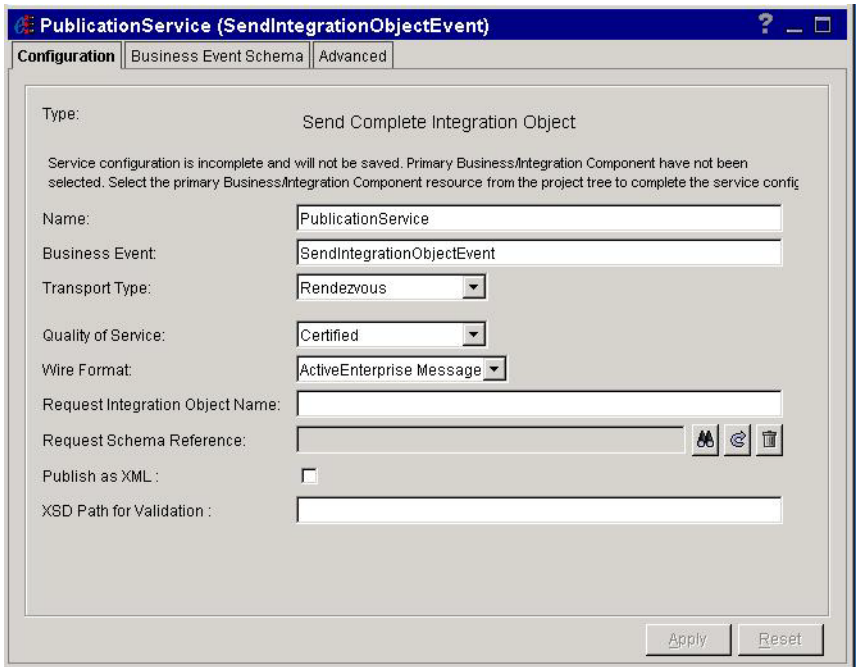
`Request Integration Object Name` — Name of the integration object to be queried.

6. Now you have two options. You can publish the Integration Object data as:
   - — AE Schema
   - — or XML

To Publish Integration Object data as AE Schema

The Integration Object data can be published as AE Schema using the following options:

- — Associate an Existing Schema
- — Create a New Schema

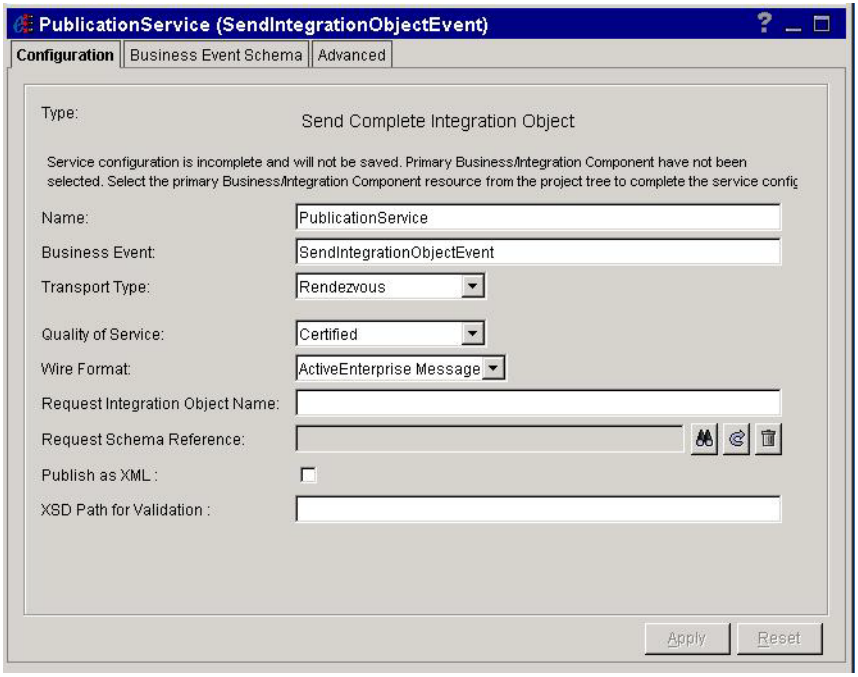


Associate an Existing Schema

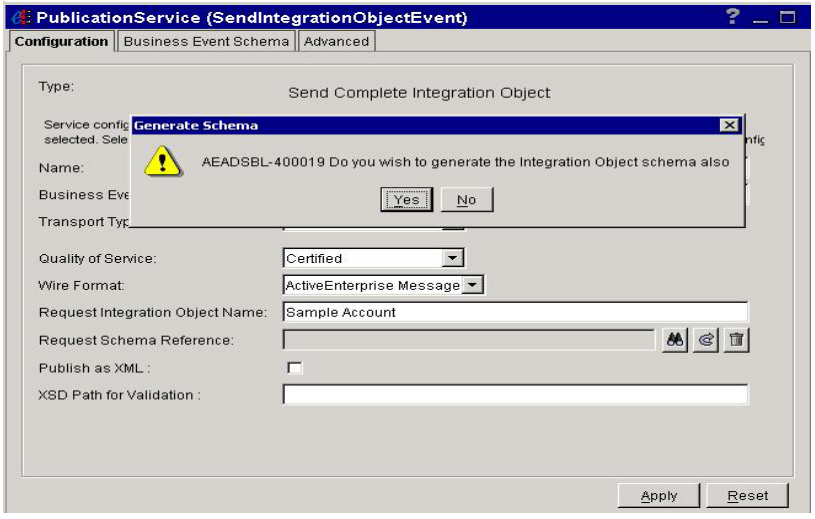
1. `requestSchemaReference` — Click the **Browse** icon. Select a schema from the list and click **OK**.
2. Click **Apply**. The new Publication Service is associated to an existing schema

Create a New Schema

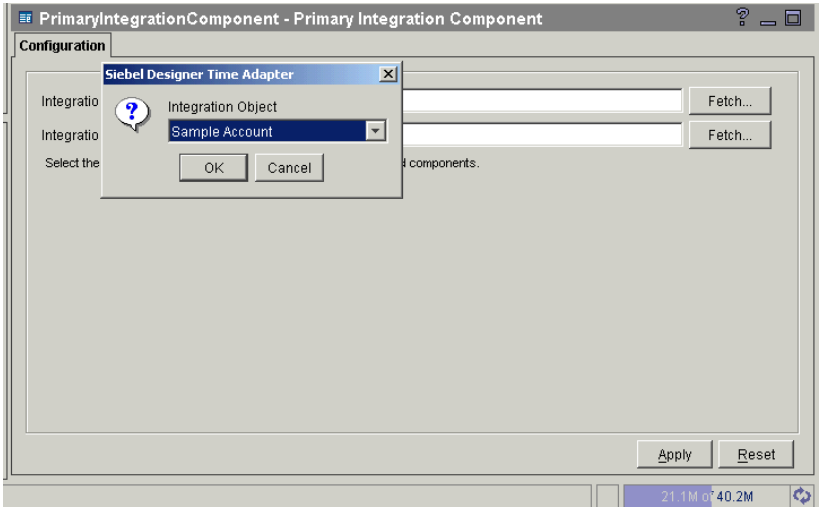
1. After specifying names in the `Request Integration Object Name` field, click **Apply**.



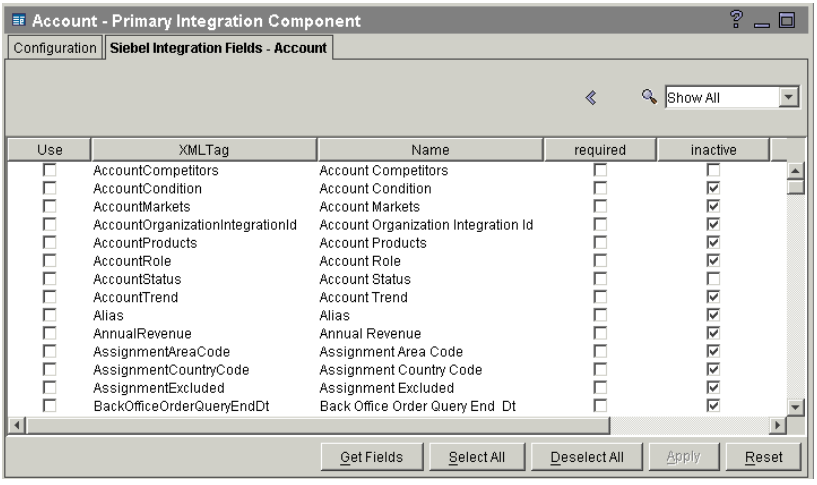
2. Click **Yes** to the query `Do you wish to generate Integration objects schema also.`



3. Click **Fetch** to select the names in the `Integration Object` and `Integration Component` fields. Click **Apply**.



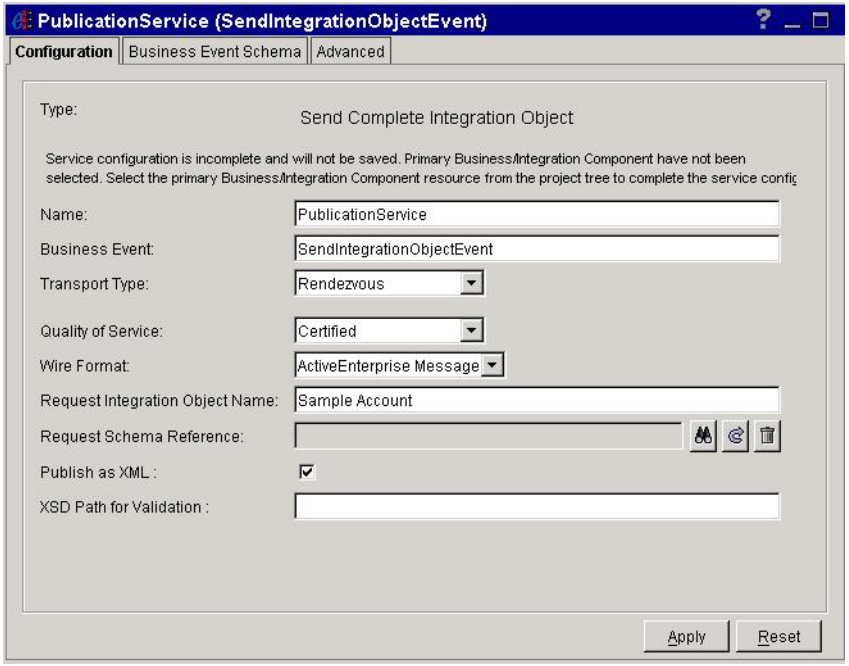
4. For example, if you have specified the `Integration Component` name as `Account`. Then, in the `Siebel Integration Fields -Account` tab, click **Select All** or select required fields and then click **Apply**.



5. Select **Project>Save** to save the Publication Service in the adapter configuration.

To Publish Integration Object data as XML

1. After specifying the name in `Request Integration Object Name`, select `Publish as XML` check box and click **Apply**.



2. Select **Project>Save** to save the Publication Service in the adapter configuration.

For information about saving as a project, refer to *TIBCO Designer User's Guide.*

Setting Subscription Service Configuration Options

The parameters required to invoke the Business Service can be accessed from Siebel Tools. Typically the Business Service invocation that involve integration objects has a parameter, `Siebel Message`. This parameter will have either `input` or `output` as its value.

Consider a scenario where the Business Service invoked is `EAI Siebel Adapter`, the name of the method is `Query` and the integration object is `Sample Account`. The `Sample Account` integration object schema is configured using TIBCO Designer. When the event is triggered, passing the required key conditions in the request, the adapter will return appropriate records.

You can configure the Subscription Service for Siebel Universal Application Network as described in the following steps:

1. Drag the **SiebelAdapterConfiguration** icon from the Siebel palette to the design panel or select the template in the project panel.
2. Drag a **Subscription Service** icon to the design panel.
3. Specify the following parameters in the `Configuration` tab.
   - Select appropriate values for `Name`, `Transport Type`, `Wire Format`, `Quality of Service`, `Connection Factory Type` and `Delivery Mode` depending on `Transport Type`.
   - Select `Siebel Invoke Business Service` for `Subscription Type`.
4. Click **Apply** .
5. Specify the following parameters in the `Configuration` tab:

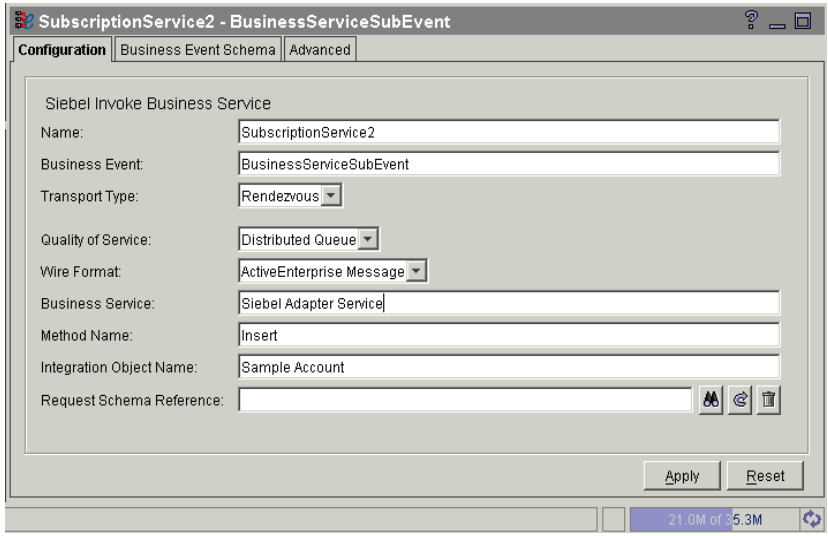
   `Business Service` — Name of the Business Service. The names of the Business Services are in the Siebel repository.

   `Method Name` — Name of the method. The names of the various methods are in the Siebel repository.

   `Integration Object Name` — Name of the integration object.

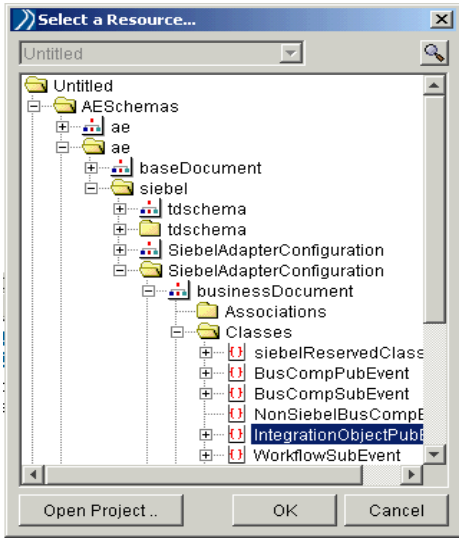
   You now have two options:

   - Associate an Existing Schema
   - Create a New Schema



Associate an Existing Schema

1. `requestSchemaReference` — Select a Siebel adapter schema for integration objects from any location in the repository using the pop-up. Click **OK**.

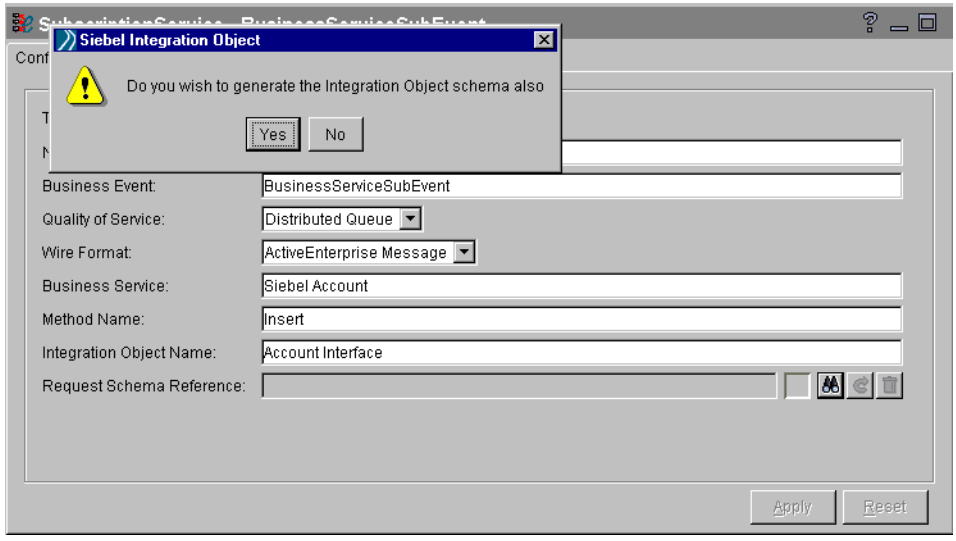


2. Click **Apply**. The Subscription Service is associated with an existing schema.

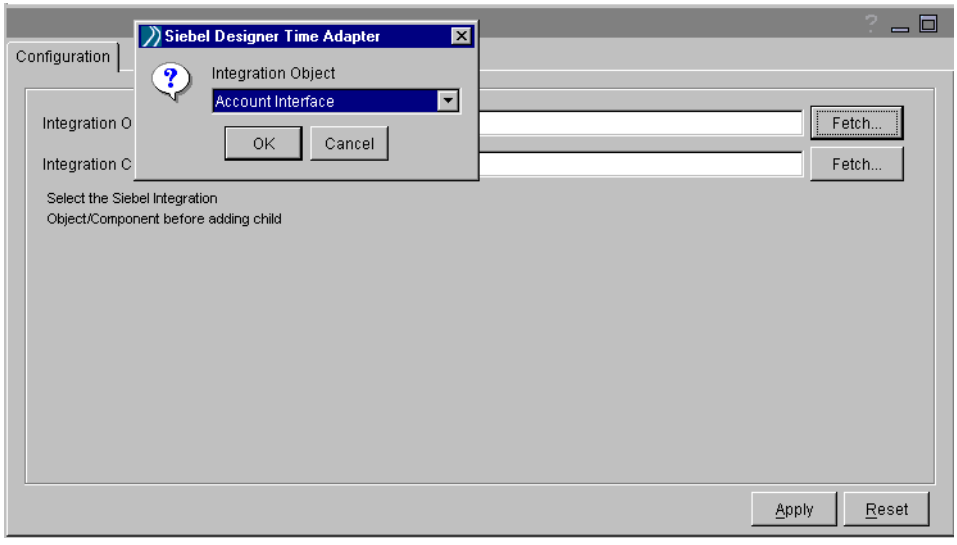
Create a New Schema

1. After selecting the names in the `Business Service`, `Method Name` and `Integration Object Name` fields, click **Apply**.

2. Click **Yes** to the query `Do you wish to generate Integration objects schema also.`

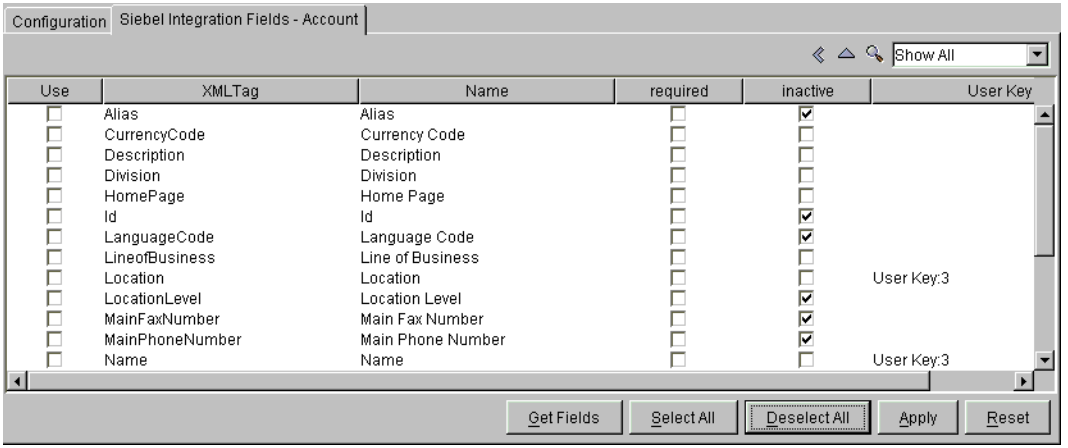


3. Click **Fetch** to select the names in the `Integration Object` and `Integration Component fields`. Click **Apply**.



4. For example, if you have specified the `Integration Component` name as `Account`. Then, in the `Siebel Integration Fields -Account` tab, click

Select All or select required fields by selecting the relevant check boxes in the **Use** tab and click **Apply**.



5. Select **Project>Save** to save the Subscription Service in the adapter configuration.

   For information about saving as a project, refer to *TIBCO Designer User's Guide*.

After an `INSERT`, `UPDATE`, `UPSERT` or `DELETE` operation of Integration Objects, the `Status Keys` are returned to the calling application in the Data Section of the Reply Advisory Document. The calling application receives the Reply Advisory Document by configuring the `Reply Address` in the request to subscribe.

Setting Request-Response Service Configuration Options

A server operation allows the adapter to process requests from client applications and return results in a reply to the client. You can configure the Request-Response Service for Siebel Universal Application Network as described in the following steps:

1. Drag the **SiebelAdapterConfiguration** icon from the Siebel palette to the design panel or select the template in the project panel.
2. Drag a **Request-Response Service** icon to the design panel.

3. Specify the following parameters in the `Configuration` tab.
   - Select appropriate values for `Name`, `Transport Type`, `Wire Format`, `Quality of Service`, `Connection Factory Type` and `Delivery Mode` depending on `Transport Type`.
   - Select `Invoke Business Service` for `Request/Response Server Type`.
4. Click **Apply**.
5. Specify the following parameters in the `Configuration` tab.

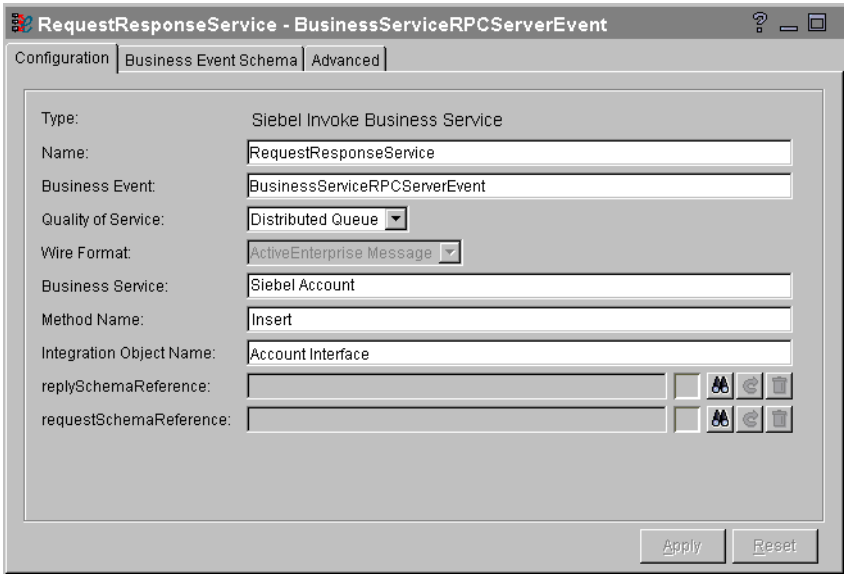
   `Business Service` — Name of the Business Service. The names of the Business Services are in the Siebel repository.

   `Method Name` — Name of the method. The names of the various methods are in the Siebel repository.

   `Integration Object Name` — Name of the integration object.

   You now have two options:

   - Associate an Existing Schema
   - Create a New Schema



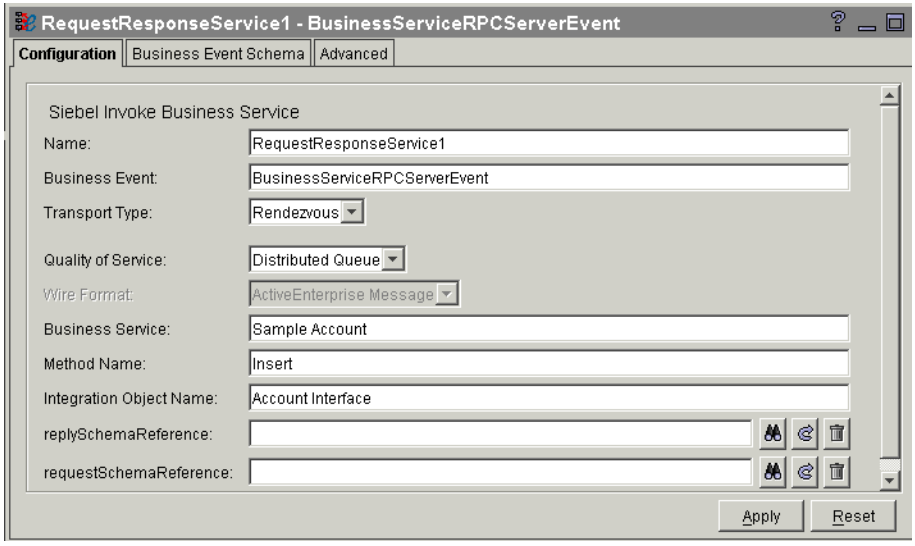
Associate an Existing Schema

1. `replySchemaReference` — Select a schema from the drop-down list and Click **OK**.

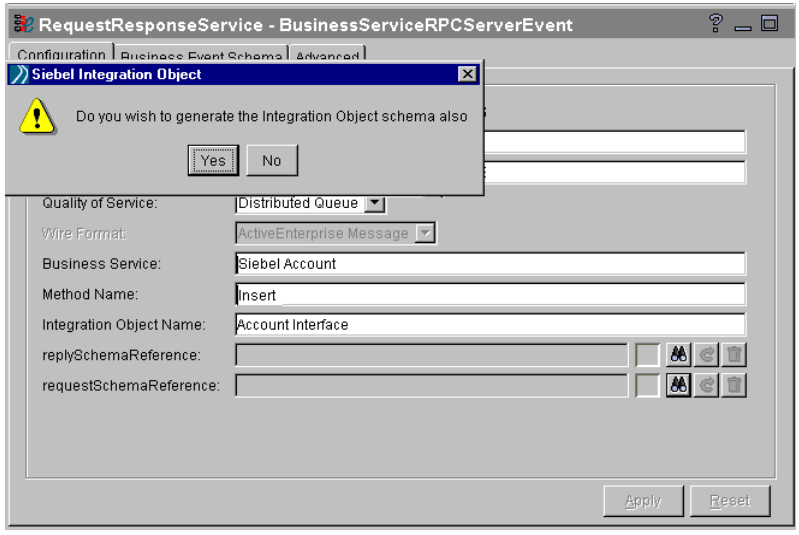
2. `requestSchemaReference` — Select a schema from the drop-down list and Click **OK**.
3. Click **Apply**. The Request-Response Service is associated with existing schemas.

Create a New Schema

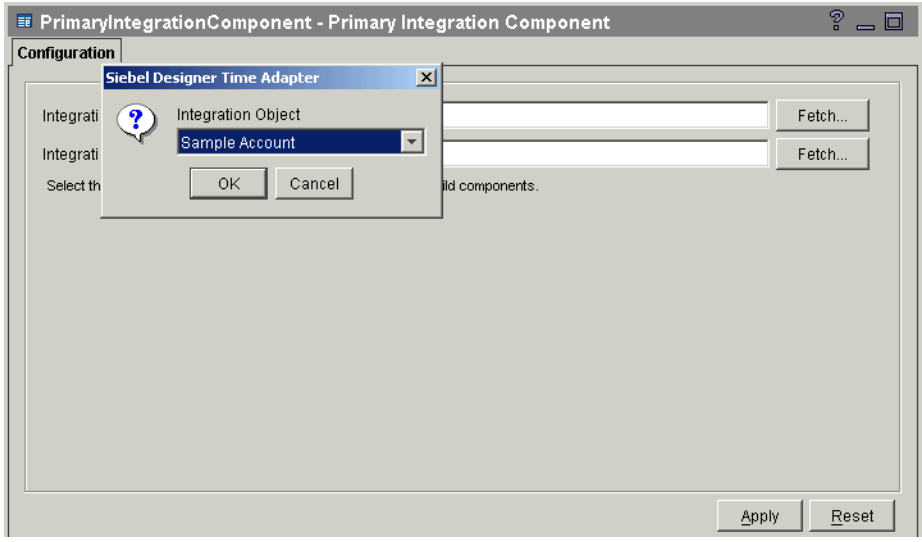
1. After specifying names in the `Business Service`, `Method Name` and `Integration Object Name` fields, click **Apply**.



2. Click **Yes** to the query `Do you wish to generate Integration objects schema also.`

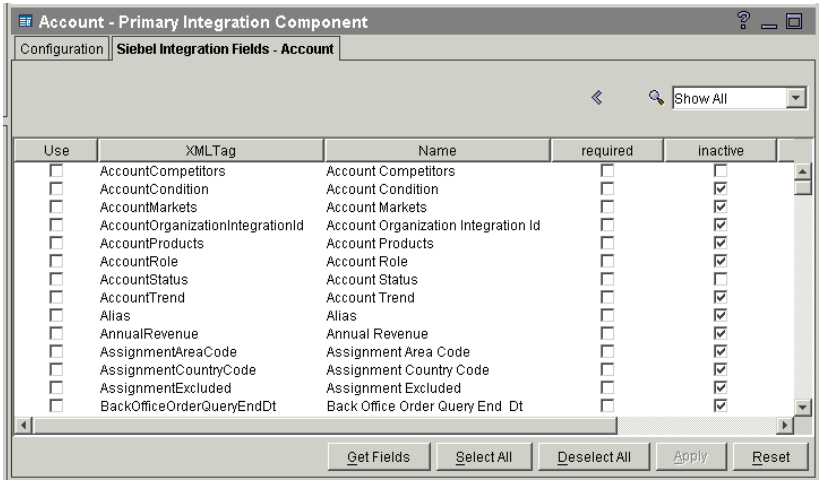


3. Click **Fetch** to select the names in the `Integration Object` and `Integration Component fields`. Click Apply.



4. For example, if you have specified the `Integration Component` name as `Account`. Then, in the `Siebel Integration Fields -Account` tab, click

Select All or select required fields by selecting the relevant check boxes in the `Use` tab and click **Apply**.



5. Select **Project>Save** to save the Request-Response Service in the adapter configuration.

   For information about saving as a project, refer to *TIBCO Designer User's Guide*.

After an `INSERT`, `UPDATE`, `UPSERT` or `DELETE` operation of Integration Objects, the `Status Keys` are returned to the calling application in the Data Section of the Reply Advisory Document. The calling application receives the Reply Advisory Document by configuring the `Reply Address` in the request to subscribe.

Setting Request-Response Invocation Configuration Options

Request-Response Invocation Service configuration involves specifying a name, quality of service and wire format. You can configure the Request-Response Invocation Service for Siebel Universal Application Network as described in the following steps:

To define invocation server configuration parameters:

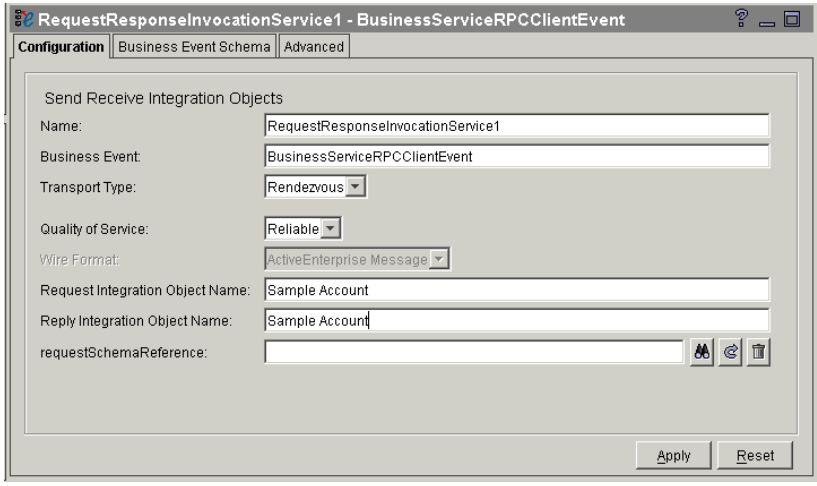
1. Drag the **SiebelAdapterConfiguration** icon to the design panel or select the template in the project panel.
2. Drag a **Request-Response Invocation Service** icon to the design panel.

3. Specify the following parameters in the `Configuration` tab.
   - Select appropriate values for `Name`, `Transport Type`, `Wire Format`, `Quality of Service`, `Connection Factory Type` and `Delivery Mode` depending on `Transport Type`.
   - Select `Send Receive Integration Objects` for `Request/Response Invocation Type`.
4. Click **Apply**.
5. Specify the following parameters in the `Configuration` tab.

   `Request Integration Object Name` — Name of the integration object to be queried.

   `Reply Integration Object Name` — Name of the integration object replying to the query.

   You now have two options:
   - Associate an Existing Schema
   - Create a New Schema

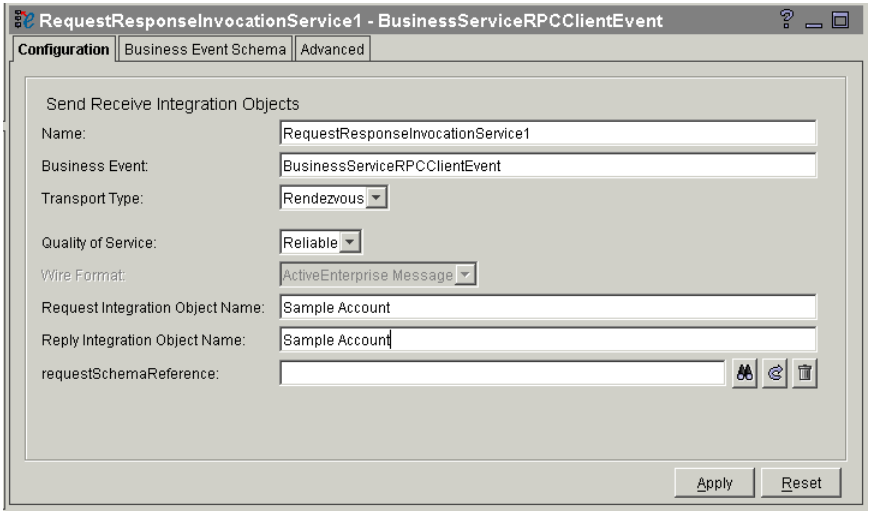


Associate an Existing Schema

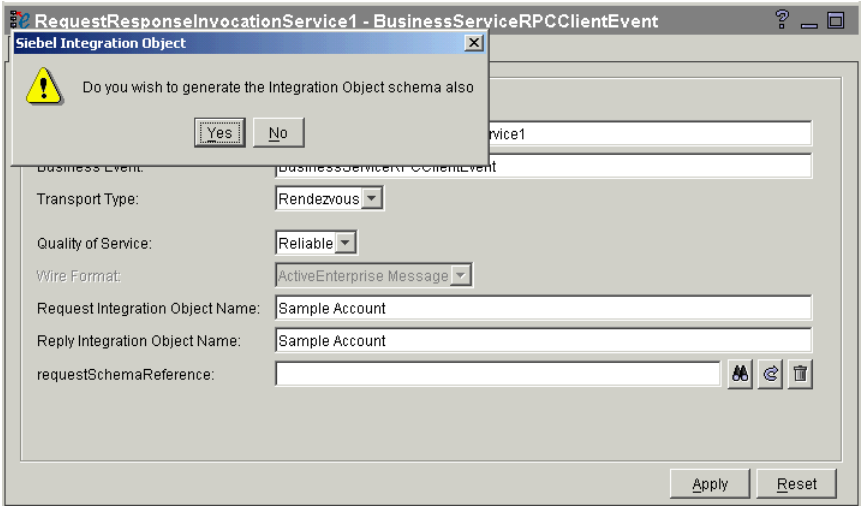
1. `requestSchemaReference` — Select a schema from the drop-down list and Click **OK**.
2. Click **Apply**. The new Request-Response Invocation Service is associated to an existing schema

Create a New Schema

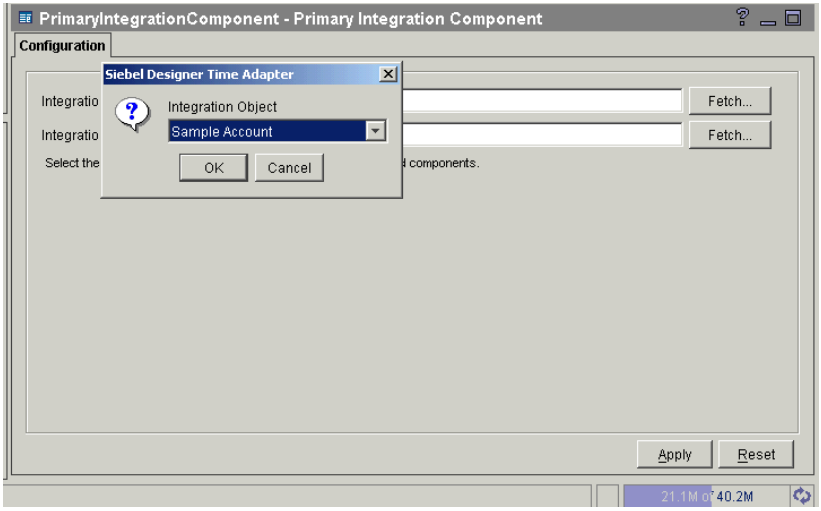
1. After specifying names in the `Request Integration Object Name` and Reply `Integration Object Name` fields, click **Apply**.



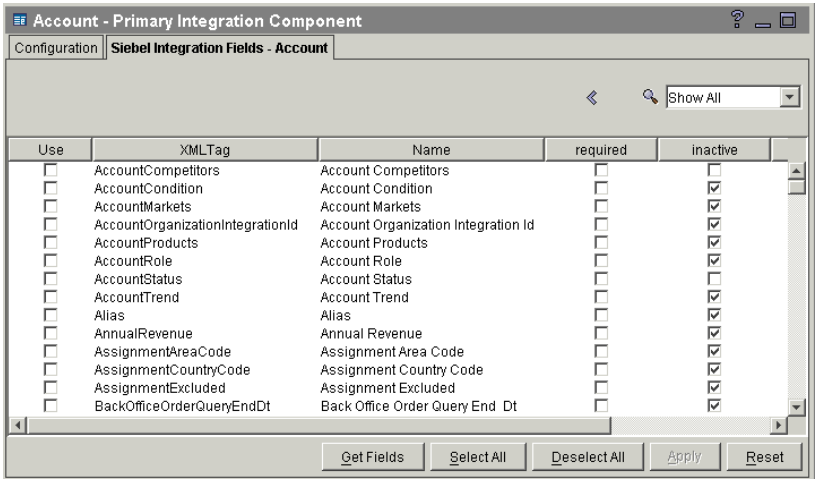
2. Click **Yes** to the query `Do you wish to generate Integration objects schema also.`



3. Click **Fetch** to select the names in the `Integration Object` and `Integration Component` fields. Click **Apply**.



4. For example, if you have specified the `Integration Component` name as `Account`. Then, in the `Siebel Integration Fields -Account` tab, click **Select All** or select required fields and then click **Apply**.



5. Select **Project>Save** to save the Request-Response Invocation Service in the adapter configuration.

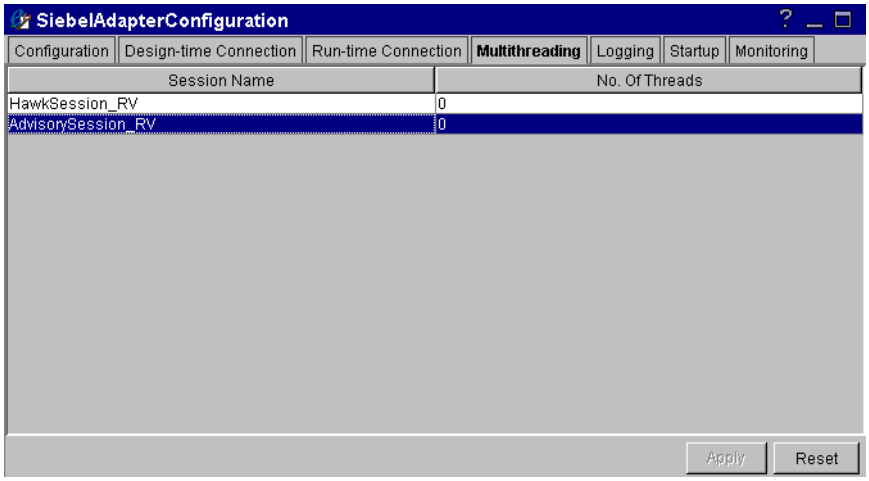
For information about saving as a project, refer to *TIBCO Designer User's Guide.*

Setting Multithreading Options

To configure the number of threads to be created at run-time, follow steps mentioned next:

For inbound services (Subscription and Request-Response service), the threads to be created should be specified at the session level. For each session, the specified number of threads will be created during run-time.

The Adapter Services screen has a field, `Number Of Threads`, which specifies the default value for the thread count for all inbound sessions.



The value specified in the `Number Of Threads` field will be the default thread count for all sessions. If you do not want to use default value, use the `Multithreading` tab to specify the number of threads for each session. If you have entered values in the `Multithreading` tab, those values will take precedence over the `Number Of Threads` field in the Adapter Services tab. By default, the thread values for sessions are blank.

The thread count is applicable at the session level and not at the service level. Two adapter services can use the same session.

For outbound services (Publication and Request-Response Invocation service), the thread count is not provided at the session level. It is provided at the adapter instance level using the parameter `Number of Threads to process Siebel Events` in the `Adapter Services` tab of the adapter instance.

The thread value provided here is completely independent from the thread count provided at the session level in the above section. The session level threads cannot be used for outbound services.

Starting the adapter in a single threaded mode

If you want to run the adapter in a single threaded mode, it is possible only if you have configured all the services as inbound services or outbound services. The adapter has to use at least a single thread for both types of services.

- All services are Outbound— If you want to configure only outbound services (Publication or Request-Response Invocation Service), configure the parameter, `Number of Threads to process Siebel Events` in the `Adapter Services` tab with value as '1'. Do not change any value for inbound session threading parameters.
- All Services are Inbound — If you want to configure only the inbound session threads, do not change the default values for multithreading related fields. The default values for all sessions will be used.
- Inbound and Outbound services — If you want to configure both inbound and outbound services, the minimum number of threads required is two. Each type of service will require at least one thread to process the event.

Recovery Mechanism

An inbound adapter configuration detects and handles transient network glitches or application-down situations dynamically and gracefully to ensure messages bound for the Siebel system from other TIBCO components are not lost.

The ability to handle such situations assumes importance in cases where message transfer is unidirectional and based on the Certified Messaging protocol. In such cases, the sending system is unaware of connection losses that are entirely internal to the adapter-to-Siebel subsystem.

When an inbound configuration receives a message, the adapter double-checks the validity of the connection before posting the message into the Siebel system. In case the Siebel system is unavailable because of network glitches or due to the application server going down, the message is not processed and is not confirmed to the sending application.

When a connection failure is detected during posting of data into the Siebel Application, the adapter will synchronously try to re-establish the connection with Siebel for the configured retries before suspend. If the connectivity is restored in this duration, the adapter processes the message and sends the confirmation to the sending application.

If the retry subsystem fails, an error will be reported and the message will not be confirmed to the sending application. All the Subscribers in the adapter instance will be suspended and adapter will not serve any messages. The adapter starts polling the Siebel system periodically for connection availability and re-establishes connection and activates all the Listeners, once the cause of the connectivity-loss is rectified.

Adapter Publishing Agent Configuration

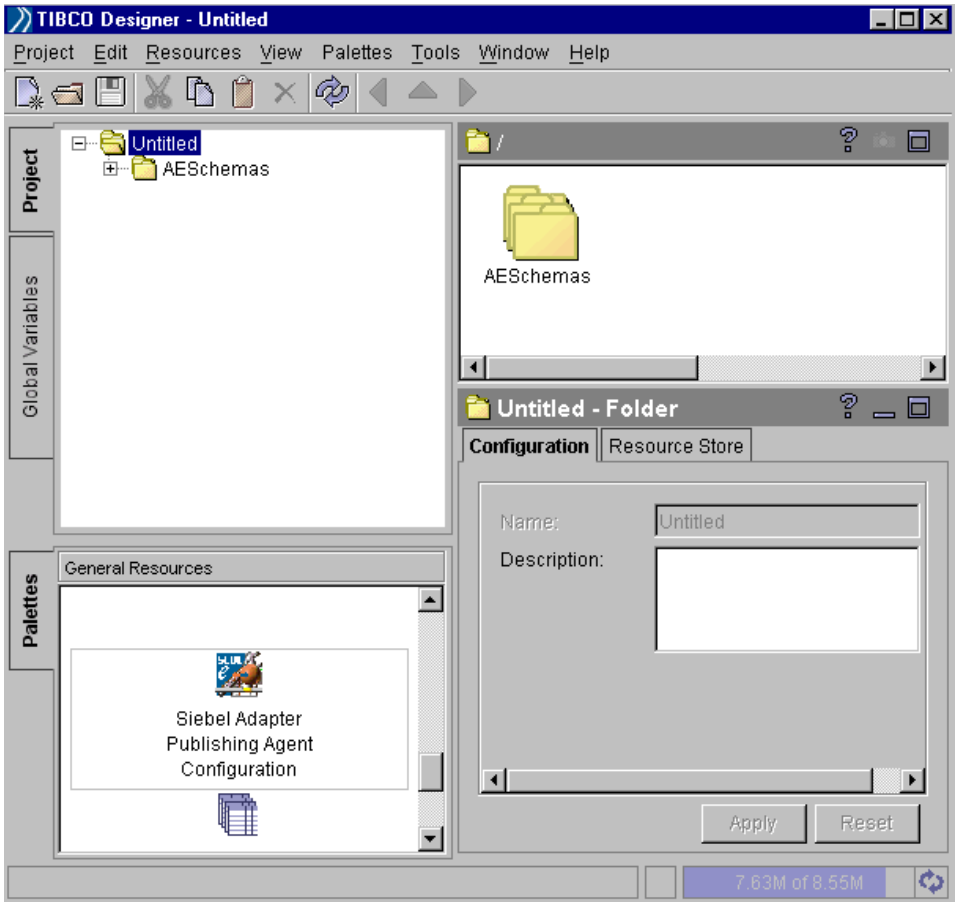
This resource is used to configure the Publishing Agent or Workflow Agent for TIBCO Adapter for Siebel 4.x.

`Siebel Adapter Publishing Agent` can be configured using the `Siebel Adapter Publishing Agent Configuration` resource.

The agents are available only when the adapter configuration is saved in AE Version 4.0 format. Use this resource only when you need to run the configuration using TIBCO Adapter for Siebel version 4.x.

For Information on Publishing agent and configuration steps, refer to *TIBCO Adapter for Siebel User's Guide* of any 4.x version.

Figure 13 Adapter Publishing Agent Configuration



Chapter 6 Configuring Advanced Settings

This chapter explains how to configure an adapter with advanced options.

Topics

Defining a TIBCO Hawk Session

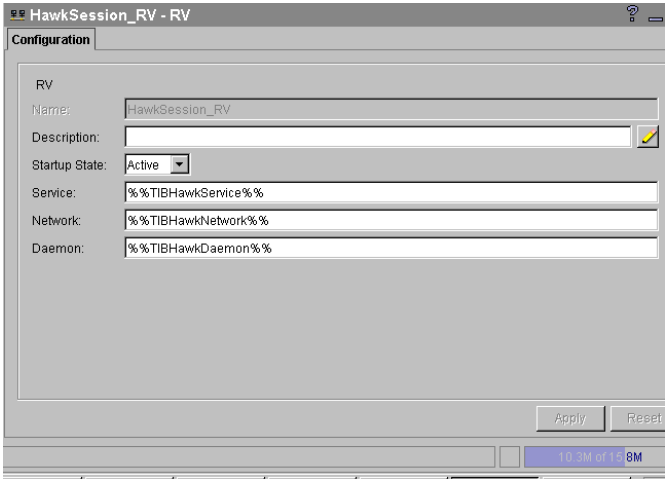
This setting will have no effect unless TIBCO Hawk is installed. You can use microagents to retrieve monitoring information like log levels, thread data, operations performed, etc. Examples of supplemental information that you can obtain with microagents include, the project URL, command line arguments used to start the adapter, and so on.

See Chapter 9, Monitoring the Adapter Using TIBCO Hawk, page 243 for a list of all supported microagents.

To use TIBCO Hawk to monitor the adapter you must first define a TIBCO Rendezvous session. A preconfigured default Hawk session is available. You can modify the settings of the pre configured session provided or define a new one.

The default hawk session gets created when the **SiebelAdapterConfiguration** icon is dragged on to the design panel.

The next screenshot shows the definition for a `Session` tab. The preconfigured session called `HawkSession_RV` is displayed in this screen.



Following are the steps for creating a custom TIBCO Hawk session:

1. Open the `Advanced` folder for the adapter instance. Click the `Sessions` folder.
2. Drag the `GenericSession` icon from the palettes panel to the design panel.
3. In the `Session Type` field, click the arrow and choose `RV`. Click **Apply**.
4. In `Name`, enter the name previously assigned in the `Default MicroAgent Session` field under the `Monitoring` tab.

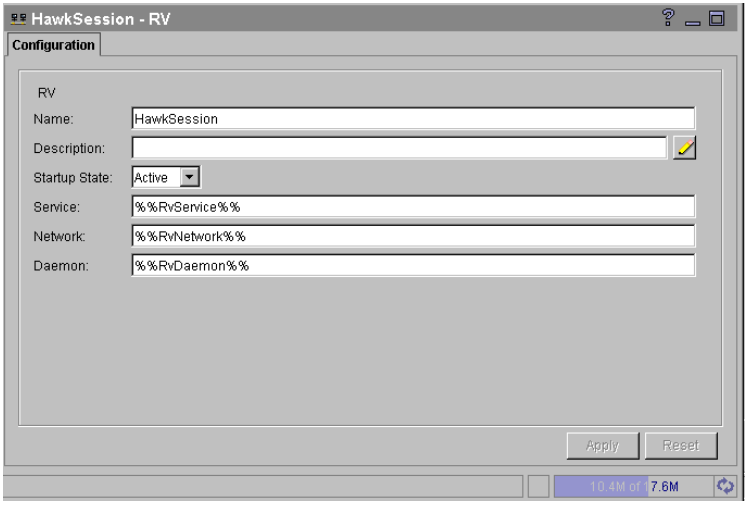
5. In `Service`, enter **`7474`** (the default used by TIBCO Hawk).
6. In `Daemon`, enter **`tcp:7474`** (the default used by TIBCO Hawk).
7. Click **Apply** and save the project.

To modify the parameters of the pre configured session, select `HawkSession_RV` from the `Advanced` folder in the project panel and modify parameters as required.

8. Save it as a local repository.

For information about saving as a project, refer to *TIBCO Designer User's Guide*.

The next screenshot shows a new TIBCO Hawk session defined.The section, Predefined Global Variables, page 178 provides a reference description of each monitoring field.



Using Global Variables

The variable substitution mechanism can override global variables predefined in the project in a restricted manner. Predefined variables can be viewed and set in TIBCO Designer. Variables are specified as `%%VARNAME%%` and cannot contain any white space.

Global variable substitution allows you to accomplish the following.

- Substitute global variables specified in the project at startup time.
- Locally define the value for a global variable for a specific project. The local value takes precedence over any global value.
- Specify the value for a variable in a properties file. This overrides the project repository.
- Enforce the predefined variables listed in Predefined Global Variables on page 178.

  Global variables can be used anywhere in the configuration and will be replaced by the values specified in the `Global Variables` tab.

Specifying Variables Using TIBCO Designer

Global variables provide an easy way to set defaults for use throughout your project. There are several ways in which they can be used:

- Define a variable using TIBCO Designer, then override the value for individual applications at deployment time using TIBCO Administrator. You can also override values for predefined variables, unless the GUI does not allow you to set them later.
- Predefine a variable using TIBCO Designer, then override the value for individual services (for example, publication service or TIBCO BusinessWorks process) at deployment time using TIBCO Administrator. The values you specify are then used at runtime. You can also override values for predefined variables, unless the GUI does not allow you to set them later.

For example, you could assign the value 7474 to the predefined global variable `RvDaemon`. You can then use the variable in different sessions in your adapter. If you wish to change the TIBCO Rendezvous daemon for your adapter, you can globally set it to a different value or override it from the command line.

To use global variables in your project, follow these steps:

1. In the project panel, select the `Global Variables` tab.

The project panel is updated to display all currently defined global variables. Click Open Advanced Editor (pencil icon at the top left corner). You now have these choices:

— To assign or change a variable value, select that region and triple-click the variable. The variable expands so you can change either the variable name or the variable value. Press Enter when you're done.

— To add a new global variable group, click the leftmost icon at the bottom of the dialog box. Specify the name of the group, then press Enter. With the group icon selected, you can click the `abc` icon to add variables to the group.

— To add a global variable, click the `abc` icon. A new global variable item is added to the bottom of the list. Supply the variable name and, optionally, the value. Press Enter when you're done.

The global variable is now displayed in the global variables list.

2. When you want to use the global variable in the fields of a resource, enter the variable name surrounded by `%%` on both sides.

   When the project is deployed and the configured components are run, all occurrences of the global variable name are replaced with the global variable value (unless it was overridden in a way that had higher precedence).

A number of global variables are predefined. See , Predefined Global Variables, page 178 for information. You may add definitions of any variables you need to the predefined variables.

Changing Global Variable Values at Runtime

You can change the value of a global variable when you deploy your project in TIBCO Administrator. See the section on modifying runtime variables in the *TIBCO Administrator User's Guide* for more information on using TIBCO Administrator.

You can also specify values for global variables when starting a process engine on the command line. To do this, specify the following as a command line argument when starting the process engine:

`-tibco.clientVar.`*<variablePathAndName>* *<value>*

where *variablePathAndName* is the name of the variable you wish to set, including the path to the variable if it is contained in a folder. *value* is the value you wish to set the variable to. For example, if you have a global variable named `item1` contained in a folder named `myGroup` and you wish to set its value to `500`, add the following argument to the command line when starting the process engine:

```
-tibco.clientVar.myGroup/item1 500
```

Predefined Global Variables

The next table lists and explains the predefined global variables. Some global variables are automatically used within the system when an adapter instance is configured.

Table 12 Predefined Global Variables

Variable	Description
`Deployment`	Defaults to the TIBCO Designer project name. This global variable is used by the system to partially define the subject name defined for a service.
`DirLedger`	Specifies the path name of the TIBCO Rendezvous certified messaging ledger file. The default is the root installation directory.
`DirTrace`	Specifies the path name for log file used by the adapter. The default is the root installation directory.
`HawkEnabled`	Indicates whether TIBCO Hawk is used to monitor the adapter. True indicates that a TIBCO Hawk microagent is defined for the adapter. False indicates the microagent is not to be used.
`JmsProviderUrl`	Specifies where the JMS server is located. Setting this value mostly makes sense in early stages of a project, when only one JMS server is used.
`JmsSslProviderUrl`	Specifies where the JMS SSL daemon is located.
`RemoteRvDaemon`	TIBCO Rendezvous routing daemon (`rvrd`) to be used. See *TIBCO Administrator Server Configuration Guide* for details about setting up a domain using `rvrd`.
`RvDaemon`	TIBCO Rendezvous daemon. Sessions use this daemon to establish communication. The default value is `7500`.

Table 12 Predefined Global Variables

Variable	Description
`RvNetwork`	TIBCO Rendezvous network. This variable need only be set on computers with more than one network interface. If specified, the TIBCO Rendezvous daemon uses that network for all outbound messages. In most cases, you can leave the default.
`RvService`	TIBCO Rendezvous service. The Rendezvous daemon divides the network into logical partitions. Each transport communicates on a single service. A transport can communicate only on the same service with other transports. Unless you are using a non-default TIBCO Rendezvous configuration, you should leave the default (7500).
`RvaHost`	Computer on which the TIBCO Rendezvous agent runs. This variable is only relevant if you are using the TIBCO Rendezvous Agent (`rva`) instead of the TIBCO Rendezvous daemon, and if you have configured a non-default setup. See *TIBCO Rendezvous Administration* for details about specifying the rva parameters.
`RvaPort`	TCP port where the TIBCO Rendezvous agent (rva) listens for client connection requests. See *TIBCO Rendezvous Administration* for details about specifying the rva parameters. Defaults to 7501.
`TIBHawkDaemon`	TIBCO Rendezvous daemon used in the TIBCO Hawk session. See the *TIBCO Hawk Installation and Configuration* manual for details about this parameter.
`TIBHawkNetwork`	TIBCO Rendezvous network used by the TIBCO Hawk session. See the *TIBCO Hawk Installation and Configuration* manual for details about this parameter.
`TIBHawkService`	TIBCO Rendezvous service used by the TIBCO Hawk session. See the *TIBCO Hawk Installation and Configuration* manual for details about this parameter.

Setting Encoding Options

See the *TIBCO Adapter Concepts* book for an introduction to Internationalization topics such as Unicode and how adapters handle it.

To set Encoding Parameter in TIBCO Designer

1. Open TIBCO Designer.
2. Go to the `RunTime Connection` tab for the Siebel adapter instance and change the value in the parameter named `Language Encoding`.

   For possible values to be entered in the `Language Encoding` field, refer to Table 11, Http Encoding Options, page 82.

   This Encoding value is used only for outbound scenarios in the adapter. If you have not configured any outbound (Publication or Request-Response Invocation) service, you need not specify any value in this field.

   For an outbound scenario, the adapter requires the encoding value being used by the Siebel application, which is specified at the time of database deployment. It is specified as the `NLS_LANG` parameter in the case of Oracle database. The adapter will use this value to read the publication request sent from the Siebel application and process it. Refer to Siebel documentation for the encoding used for various languages.

For Siebel 7.5, always use `UTF-8` encoding.

To set Encoding at the Repository Level

Enter `UTF-8` as the encoding for the repository file using `RepoFinder`. For more information on encoding, refer to the *Projects and Encoding* section in *TIBCO Designer's User's Guide*.

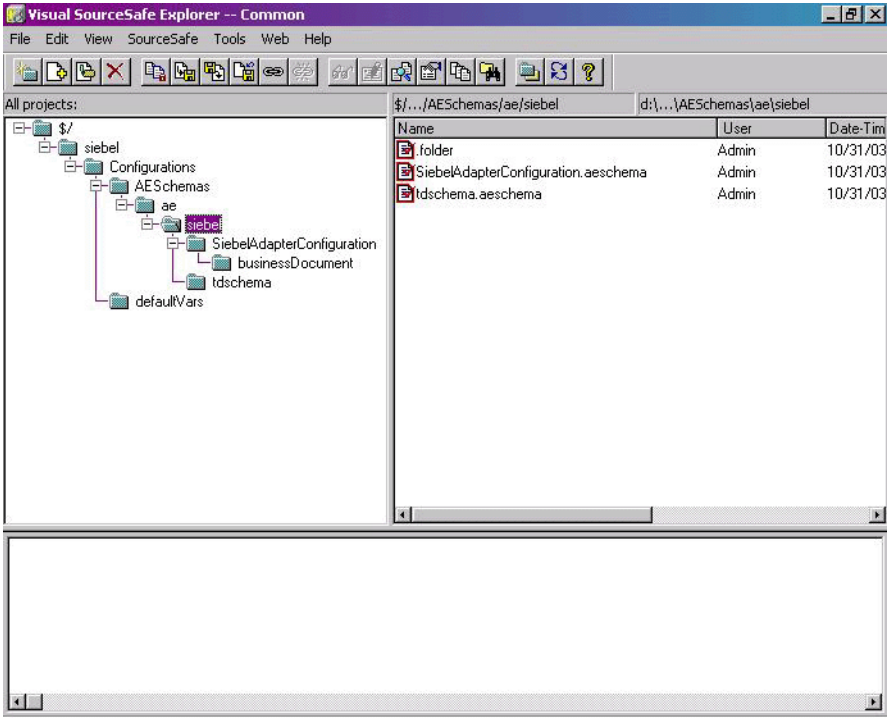
Using the Adapter with a Revision Control System

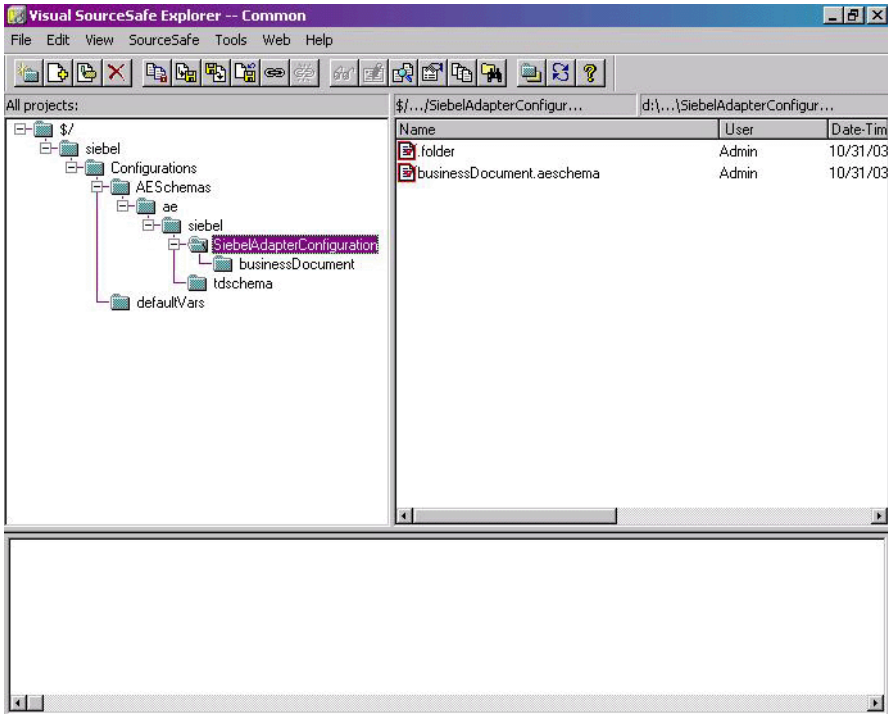
TIBCO Designer supports revision control systems such as Microsoft Visual SourceSafe and Perforce. If you are using a revision control system, you must manually add some configured resources to the revision control system and check in the resources when completing the instance configuration.

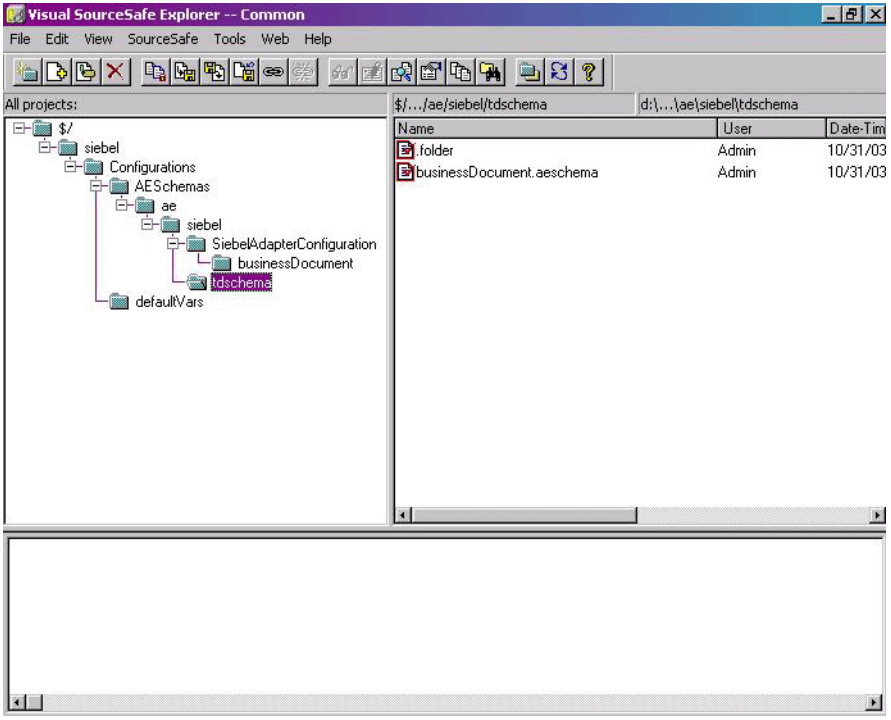
As part of service configuration, the adapter creates schema files in `root/AESchemas/ae/Siebel`. For example, if you configure a service in a `SiebelAdapterConfiguration`, the following files are created:

```
Project_root /AESchemas/ae/Siebel/tdschmea.aeschema
Project_root /AESchemas/ae/Siebel/tdschmea(folder)
Project_root
/AESchemas/ae/Siebel/SiebelAdapterConfiguration.aeschema
Project_root
/AESchemas/ae/Siebel/SiebelAdapterConfiguration(folder)
where SiebelAdapterConfiguration is the adapter configuration.
```

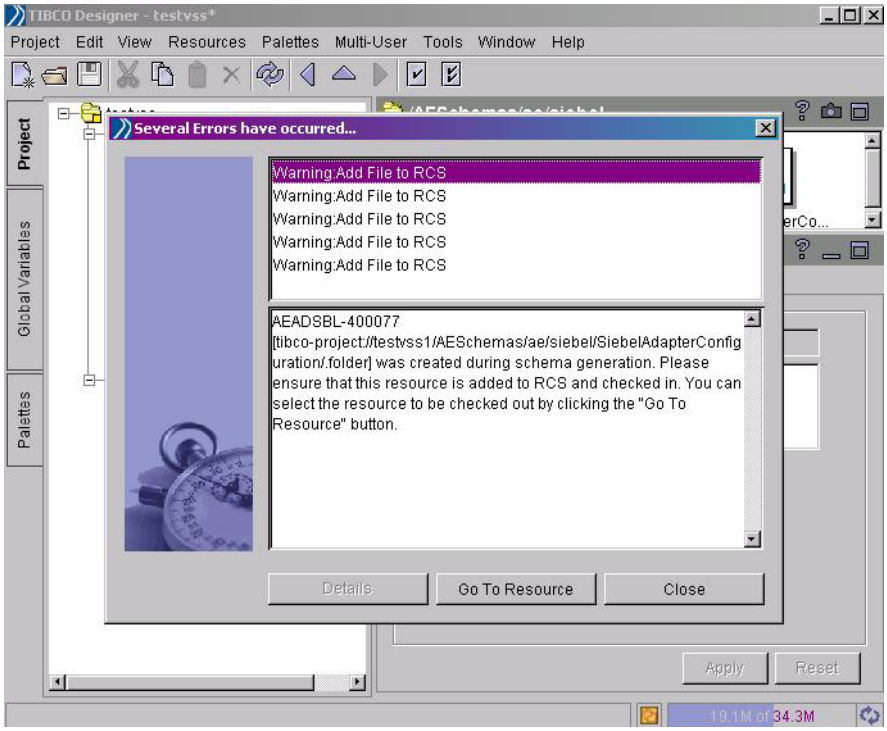
The following images show the above-mentioned folders in a Revision Control System:


Visual SourceSafe Explorer -- Common
File Edit View SourceSafe Tools Web Help
All projects:
$/
siebel
Configurations
AESchemas
ae
siebel
SiebelAdapterConfiguration
businessDocument
tdschema
defaultVars
$/.../AESchemas/ae/siebel
d:\...\AESchemas\ae\siebel
Name
User
Date-Tim
folder
Admin
10/31/03
SiebelAdapterConfiguration.aeschema
Admin
10/31/03
tdschema.aeschema
Admin
10/31/03


Visual SourceSafe Explorer -- Common
File Edit View SourceSafe Tools Web Help
All projects:
$/
siebel
Configurations
AESchemas
ae
siebel
SiebelAdapterConfiguration
businessDocument
tdschema
defaultVars
$/.../SiebelAdapterConfigur...
d:\...\SiebelAdapterConfigur...
Name
User
Date-Tim
.folder
Admin
10/31/03
businessDocument.aeschema
Admin
10/31/03



When the project is saved and a revision control system has been specified, the adapter displays a warning that additional files were created and should be added to the revision control system. This warning appears only when the files are created for the first time. The warning displays a `Go To Resource` button that helps in navigating to the resource. You should use the `Multi-User>Add Resources to RCS` menu command to add these files to the revision control system.



For information about how to use the Multi-User feature in TIBCO Designer, refer to the *TIBCO Designer User's Guide*.

Copy, Cut, Paste, and Move Operations

To successfully copy and paste a service from adapter *Instance1* to *Instance2*, the adapter configuration and schema files for the *Instance2* must be checked out.

To successfully cut and paste a service from adapter *Instance1* to *Instance2*, the adapter configuration and schema files for both *Instance1* and *Instance2* must be checked out.

To successfully move a service from adapter *Instance1* to *Instance2*, the adapter configuration and schema files for both *Instance1* and *Instance2* must be checked out.

Chapter 7 Deploying and Starting an Adapter Using TIBCO Administrator

This chapter provides an overview about deploying, starting, stopping, and monitoring adapters using the TIBCO Administrator web interface.

Topics

Create an EAR File in TIBCO Designer

Generate an Enterprise Archive file (EAR) that contains information about the adapter services to deploy.

The EAR file contains information on what you wish to deploy. This could be one or more adapter services, one or more TIBCO BusinessWorks process engines, or both.

Building an archive creates the EAR file, which you can then deploy from TIBCO Administrator. If you make changes to the business processes or adapter services included in the archive, you need to rebuild the archive. Saving the project does not affect the archive.

In TIBCO Designer, follow these steps to create an EAR:

1. Configure the adapter services.
2. Drag and drop the `Enterprise Archive` resource from the palette panel to the design panel. If there are any configured adapter services in your project, an `Adapter Archive` resource becomes available in the palette panel.
3. Drag the `Adapter Archive` into the design panel and specify information in the `Configuration` tab, then click **Apply**.
4. Go to the `Enterprise Archive` and click **Build Archive** to create the archive file.

See Also

See the *TIBCO Designer User's Guide* for more information about this procedure. The guide is available from the Designer `Help` menu.

Deploy the Project

Before deploying a project, the machine on which the adapter is installed must be part of a TIBCO administration domain. After you have installed the TIBCO Administration Server, any machine on which you install TIBCO Runtime Agent (required by an adapter) can be added to the administration domain. The TIBCO software installed on the machine is then visible and accessible via the TIBCO Administrator GUI.

When you deploy a project, startup scripts and other information about the different components are sent to the machines to which the components were assigned. The project data store and TIBCO Administration Server are updated with the deployed components.

To deploy a project:

1. Import the EAR file into TIBCO Administrator.
2. Assign adapter archives in the EAR file to adapters installed in the administration domain and likewise assign process archives to process engines.
3. Specify startup options for each adapter service.

Password Handling

At design-time, the adapter uses a password to connect to the backend application and fetch metadata. At run-time, the adapter uses a password to connect to the back-end application and interoperate with it. If you create a 4.x configuration using TIBCO Designer 5.x, and use the configuration against a 4.x adapter version, some special considerations are required for security.

When deploying the adapter check the `Service` property of the global variable in the global variables section, then go to the `Advanced` tab of the adapter archive and set the password value under the `Run-Time Variables` section.

Do not set the password to type `Password` in the global variables section for adapter configurations that are set to `AE Version 4.0` or `AE Version 5.2` (in the `Configuration` tab `Version` field) or any intermediate version.

See Also

See the *TIBCO Administrator User's Guide* for an introduction to the TIBCO administration domain and detailed information about the above steps.

Start or Stop the Adapter

The TIBCO Administrator `Application Management` module allows you to start, and stop deployed applications.

To start an adapter service from the module:

1. In the Administrator GUI left pane, expand **Application Management>** *Application-Name*>**Service Instances**.
2. In the `Service Instance` panel, select the check box next to the adapter service.
3. Click the **Start Selected** button.

   The status changes from `Stopped` to `Starting up` to `Started`.
4. To stop the adapter service, click the **Stop Selected** button.

See Also

See the *TIBCO Administrator User's Guide* for more information.

Monitor the Adapter

TIBCO Administrator offers a number of monitoring options.

- Specify alerts and TIBCO Hawk rulebases for each machine in the domain.
- Specify alerts and Hawk rulebases for each adapter service.
- View the log for each adapter service instance.

See Also

See the *TIBCO Administrator User's Guide* for information about configuring the above monitoring options.

Chapter 8 Using the EAI TIBCO HTTP Agent Business Service

This chapter describes how a Custom Siebel Business Service, `EAI TIBCO HTTP Agent`, facilitates exchange of data between Siebel and other external systems using the adapter.

Topics

Overview

The `EAI TIBCO HTTP Agent` Business Service enables the Siebel Object Manager to generate outbound requests to the adapter. The publication requests can be triggered or invoked from various contexts within the Siebel environment such as Siebel event scripts or Siebel workflow processes.

The Business Service encapsulates the HTTP Transport interface provided by Siebel that generates the outbound requests to the adapter.

Publishing Using EAI TIBCO HTTP Agent Business Service

The following table describes various methods to generate publication requests to the adapter upon occurrence of a Business Event at real time or polling for occurrences of multiple Business Events in scheduled time intervals:

Table 13 EAI TIBCO HTTP Agent Deployment Strategies

Publication Request Method	Description
Siebel Workflow Policy and Action	• Utilize `EAI TIBCO HTTP Agent` Business Service in Siebel Workflow process to invoke the adapter for generating an outbound TIBCO message. • Publication request generated by Siebel Workflow Actions when the conditions for a Siebel Workflow policy are met. Example: Account status updated to `Inactive`. Example: Service Request Status changed to `Closed`. • No scripting is required at Siebel Business Objects Layer and Siebel User Interface Layer.
Business Component Event Script	• Utilize `EAI TIBCO HTTP Agent` Business Service in Siebel Business Component Event Script to invoke the adapter for generating an outbound TIBCO message. • Publication request generated by event scripts of Business Components at the Siebel Business Objects Layer. Example: Account Business Component is updated triggering the `BusComp_WriteRecord` event. • Scripting is required for Business Component level at the Siebel Business Object Layer.
User Interface Component Event Script	• Utilize `EAI TIBCO HTTP Agent` Business Service in Siebel User Interface Component Event Scripts to invoke the adapter for generating an outbound TIBCO message. • Publication request generated by event scripts of UI Applet components at the Siebel User Interface Layer. Example: Button click in a Form Applet. • Scripting is required for UI Applet Component level at the Siebel User Interface Layer.

Table 13 EAI TIBCO HTTP Agent Deployment Strategies

Publication Request Method	Description
Siebel EAI Integration Object instance	• Utilize `EAI TIBCO HTTP Agent` Business Service in Siebel EAI Integration Object Instance to invoke the adapter for generating an outbound TIBCO message. • Publication requests generated by records in a Siebel EAI Integration Object instance. Example: Siebel EAI Integration Object instance generated by a query using the `EAI Siebel Adapter` Business Service for Service Requests closed in the last hour. • No scripting is required at Siebel Business Objects Layer and Siebel User Interface Layer.

The following table categorizes the recommended `EAI TIBCO HTTP Agent` deployment strategies by the type of Siebel Clients employed. It presents the method of invocation for generating the publication request.

For all combinations of Siebel Clients and publication request method:

Table 14 Different Siebel Client Types and Methods of Invocation

Siebel Client Type	Publication Request Method
Mobile Clients	Siebel Workflow Policy and Action.
Siebel Server Task	Siebel EAI Integration Object instance.
EAI Connectors (available as part of the Siebel 7 - Server installation).	Siebel Workflow Policy. Action Business Component Event script.

EAI TIBCO HTTP Agent - Interface and Methods

The `EAI TIBCO HTTP Agent` Business Service supports the following service methods:

- Query Adapter Availability.
- Publish Business Event.
- Publish Business Event with Reply.

Query Adapter Availability

This service method is used to query the availability of the adapter. This method sends a HTTP request to the adapter on a specific port. The adapter listening on this port, sends a reply accordingly. The method returns an error code `0` when it is successful

Table 15 Query Adapter Availability Arguments

Argument	Type	Description
`AgentHTTPServer`	Input	The name or IP address of the machine on which the adapter is running. The server name should include the port number also. For example, if the adapter is configured to listen on port `9191` on Machine `myMachine`, then the parameter `AgentHTTPServer` will have the value `myMachine:9191`. Ensure that the value entered in the <*myMachine*> field is the same as that entered while generating the certificate. For example, if you have entered the IP address of the machine as your `First Name` and `Last Name` while generating the certificate, enter the same in <*myMachine*> field.
`ErrorCode`	Output	Returns error code if the service method failed to query the state of the adapter on the network.
`ErrorMessage`	Output	Returns error description about the query failure.
`ServerPublisherState`	Output	• `0` - Active adapter awaiting requests on the network. • `1` - No running adapter instance detected on the network.

Table 15 Query Adapter Availability Arguments

Argument	Type	Description
IsSecureConn	Input	Set this flag to Y to enforce a secured connection using SSL. If you choose Y, you must establish a certified connection on both, client and server. By default, IsSecureConn is set to N.

Publish Business Event

This service method is used to generate the publication request to the adapter. This method sends a HTTP request to the adapter and waits for the adapter to reply with the publication event status. The method returns an error code 0 when the publication is successful.

Table 16 Publish Business Event Arguments

Argument	Type	Description
AgentHTTPServer	Input	The name or IP address of the machine on which the adapter HTTP Listener is listening. The Server name should include the port number also. For example, if the adapter is configured to listen on port 9191 on Machine myMachine, then the parameter AgentHTTPServer will have the value myMachine:9191. Ensure that the value entered in the <*myMachine*> field is the same as that entered while generating the certificate. For example, if you have entered the IP address of the machine as your First Name and Last Name while generating the certificate, enter the same in <*myMachine*> field.
ErrorCode	Output	Returns a non-zero error code if the adapter failed to process the publication request.
ErrorMessage	Output	Returns error description about the event failure.
EventName	Input	Name of the Business Event to request for publishing.
KeyName	Input	(Optional) Name of the Siebel field as the key for setting up the top-level matching criterion for the adapter to process the publication request. If this is not given, the default top-level match field in the Business Event specifications is used.
KeyValue	Input	Value of the key field value in generating the top-level matching criterion.

Table 16 Publish Business Event Arguments

Argument	Type	Description
`OperationType`	Input	• `insert` – insert operation code. • `update` – update operation code. • `delete` – delete operation code. • `upsert` – insert or update operation code.
`NumInputKeySets`	Input	(Optional) Number of search key name or value pairs in the input `InputKeySets` arguments for setting the top-level matching criteria for the adapter to process the publication request.
`InputKeySets`	Input	(Optional) Input key name or value pairs in the Siebel Property Set hierarchy form.
`TIBErrorCode`	`Output`	Returns error codes specific to the TIBCO Siebel adapter. Refer to the Table 28 for more information on error codes specific to the Siebel adapter.
`CharSetConversion`	Input	Specifies how the character set should be converted while exchanging data between the adapter and an external system. The same character set conversion is assumed for both requests and responses. `None`, `UTF-8`, and `UTF-16` are the accepted values for this arguement. By default, the value is `None`.
`HTTPRequestTimeout`	Input	Is the timeout interval required to login, send, and log off requests. The value is in milliseconds. The default value is 120000 ms.
`IsSecureConn`	Input	Set this flag to `Y` to enforce a secured connection using SSL. If you choose `Y`, you must establish a certified connection on both, client and server. By default, `IsSecureConn` is set to `N`.
`CheckAdapterAvailability`	Input	The Business Service checks for adapter availability when this flag is set to `Y`. By default, this field is set to `N`.
`SiebelMessage`	Input	The XML representation of the Siebel Integration Object. Provide this input to send a complete Integration Object to the adapter. Refer to the section *Siebel Integration Objects, page 395*, for more information.

The following table describes the four ways of invoking this service method:

Table 17 Invoking the Publish Business Event Service Method

Required Argument	Description
`KeyValue only`	The default top-level match field specified in the Business Event specification is used as the matching criterion for generating one publication event.
`KeyName and KeyValue`	The top-level match field is set using the `KeyName` input argument (overwriting the default top-level match field) and is used as the match criterion for generating one publication request.
`NumInputKeySets, InputKeySets`	The top-level match fields are set using the name or value pairs specified in the `InputKeySets` as Siebel Property Sets and are used as the match criteria for generating one publication request.

Publishing Business Event with Reply

This service method is used to generate a publication request to the adapter and waits for the reply data processed through an external AE operation server implementation or processEvent.

Table 18 Publish Business Event with Reply Arguments

Argument	Type	Description
`AgentHTTPServer`	Input	The name or IP address of the machine on which the adapter is running. The server name should include the port number also. For example, if the adapter is configured to listen on port `9191` on Machine `myMachine`, then the parameter `AgentHTTPServer` will have the value `myMachine:9191`. Ensure that the value entered in the <*myMachine*> field is the same as that entered while generating the certificate. For example, if you have entered the IP address of the machine as your `First Name` and `Last Name` while generating the certificate, enter the same in <*myMachine*> field.
`ErrorCode`	Output	Returns a non-zero error code if the adapter fails to process the request.
`ErrorMessage`	Output	Returns error description about the event failure.

Table 18 Publish Business Event with Reply Arguments

Argument	Type	Description
`EventName`	Input	Name of the Business Event to request for publishing.
`KeyName`	Input	(Optional) Name of the Siebel field as the key for setting up the top-level matching criterion for the adapter to process the publication request. If this is not given, the default top-level match field in the Business Event specifications is used.
`KeyValue`	Input	Value of the key field value in generating the top-level matching criterion.
`OperationType`	Input	• `insert` – insert operation code. • `update` – update operation code. • `delete` – delete operation code. • `upsert` – insert or update operation code.
`NumInputKeySets`	Input	(Optional) Number of search key name or value pairs in the input `InputKeySets` arguments for setting the top-level matching criteria for the adapter to process the publication request.
`ReplyNumeric`	Output	Reply data as numeric value returned from the operation implementation for `businessEvent.processEvent()`.
`ReplyString`	Output	Reply data as string value returned from the operation implementation for Request-Response Invocation service.
`ReplyMessage`	Output	Reply data as Siebel Property Set returned from the operation implementation for `businessEvent.processEvent()`.
`ReplyTimeout`	Input	In the Request-Response Invocation service, it is the time interval lapsed between receiving a request and sending a response back to the external system. The interval is measured in milliseconds (ms.) By default, the timeout interval is 100000 ms. Receives timeout in seconds for the operation implementation for `businessEvent.processEvent()`.

Table 18 Publish Business Event with Reply Arguments

Argument	Type	Description
CharSetConversion	Input	Specifies how the character set should be converted while exchanging data between the adapter and an external system. The same character set conversion is assumed for both requests and responses. None, UTF-8, and UTF-16 are the accepted values for this arguement. By default, the value is None.
CheckAdapterAvailability	Input	The Business Service checks for adapter availability when this flag is set to Y. By default, this field is set to N.
SiebelMessage	Input	The XML representation of the Siebel Integration Object. Provide this input to send a complete Integration Object to the adapter. Refer to the section *Siebel Integration Objects, page 395*, for more information.
HTTPRequestTimeout	Input	Is the timeout interval required to login, send, and log off requests. The value is in milliseconds. The default value is 120000 ms.
TIBErrorCode	Output	Returns error codes specific to the TIBCO Siebel adapter. Refer to Table 28 for more information on error codes specific to the Siebel adapter.
IsSecureConn	Input	Set this flag to Y to enforce a secured connection using SSL. If you choose Y, you must establish a certified connection on both, client and server. By default, IsSecureConn is set to N.

The following table describes the four ways of invoking this service method:

Table 19 Invoking the Publish Business Event Method with Reply

Required Argument	Description
KeyValue only	The default top-level match field specified in the Business Event specification is used as the matching criterion for generating one publication event.
KeyName and KeyValue	The top-level match field is set using the KeyName input argument (overwriting the default top-level match field) and is used as the match criterion for generating one publication request.

Table 19 Invoking the Publish Business Event Method with Reply

Required Argument	Description
`NumInputKeySets, InputKeySets`	The top-level match fields are set using the name or value pairs specified in the `InputKeySets` as Siebel Property Sets and are used as the match criteria for generating one publication request.

If you are using service type as `SendReceive Integration Objects` in the Request-Response Invocation service, `SiebelMessage` should be entered as `KeyName` and the `KeyValue` should contain the whole integration object instance. Refer to the section *Siebel Integration Objects, page 395*, for more information.

Importing the EAI TIBCO HTTP Agent Business Service

The `EAI TIBCO HTTP Agent` Business Service must be imported into Siebel Tools using the Siebel archive provided with the adapter installation. Once the Business Service is imported into Siebel Tools and the Siebel Repository file (srf) is regenerated, it can be accessed by Siebel eScript or VBscript code or can be called from Siebel workflow processes.

The name and the path for the supplied Siebel archive `EAI TIBCO HTTP Agent` Business Service are as follows:

- For Siebel 6.2.x and higher

  Siebel Archive Name:
  `TIBSiebelAdapterHTTPAgentBusinessService_escript.sif`

  `TIBSiebelAdapterHTTPAgentBusinessService_svb.sif` (to be used only on Windows)

  Location:
  `<Adapter_Home>/siebel/TIBSiebelAdapterHTTPAgentBusinessService_escript.sif`

- For Siebel 7.0.X

  Siebel Archive Name:
  `7TIBSiebelAdapterHTTPAgentBusinessService_escript.sif.`

  `7TIBSiebelAdapterHTTPAgentBusinessService_svb.sif` (to be used only on Windows)

  Location:
  `<Adapter_Home>/siebel/7TIBSiebelAdapterHTTPAgentBusinessService_escript.sif`

- For Siebel 7.5.2

  Siebel Archive Name:
  `752TIBSiebelAdapterHTTPAgentBusinessService_escript.sif.`

  `752TIBSiebelAdapterHTTPAgentBusinessService_svb.sif (to be used only on Windows)`

  Location:
  `<Adapter_Home>/siebel/752TIBSiebelAdapterHTTPAgentBusinessService_escript.sif`

- For Siebel 7.7.x and 7.8.x:

  Siebel Archive Name:
  `77TIBSiebelAdapterHTTPAgentBusinessService_escript.sif.`

`77TIBSiebelAdapterHTTPAgentBusinessService_svb.sif` (to be used only on Windows)

Location:
`<Adapter_Home>/siebel/77TIBSiebelAdapterHTTPAgentBusinessService_escript.sif`

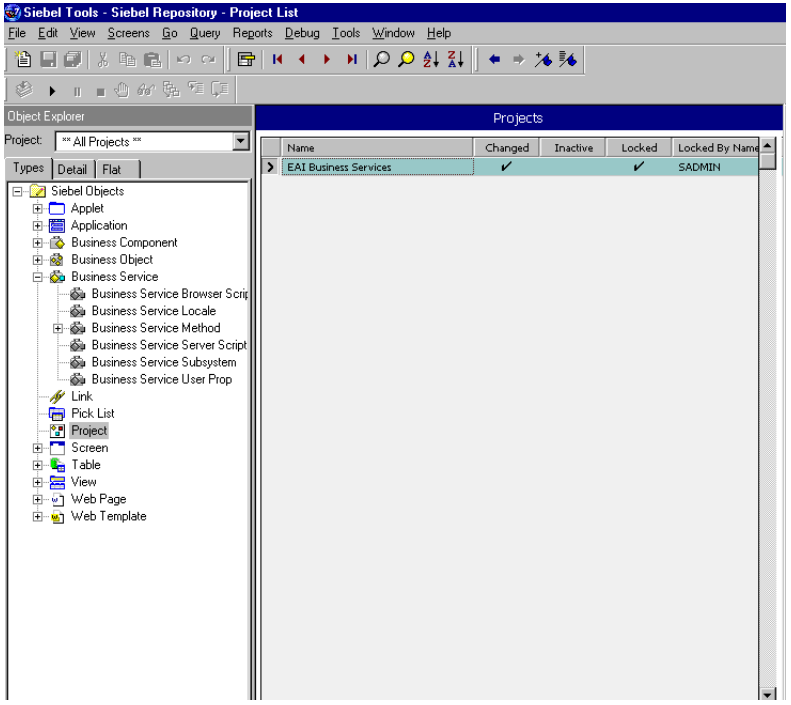
On UNIX, only eScript can be used. For invoking the Publication or Request-Response Invocation Service running on UNIX, import the `EAI TIBCO HTTP Agent` Business Service and ftp the compiled.`srf` to the UNIX Siebel installation.

Procedure for Importing the Business Service

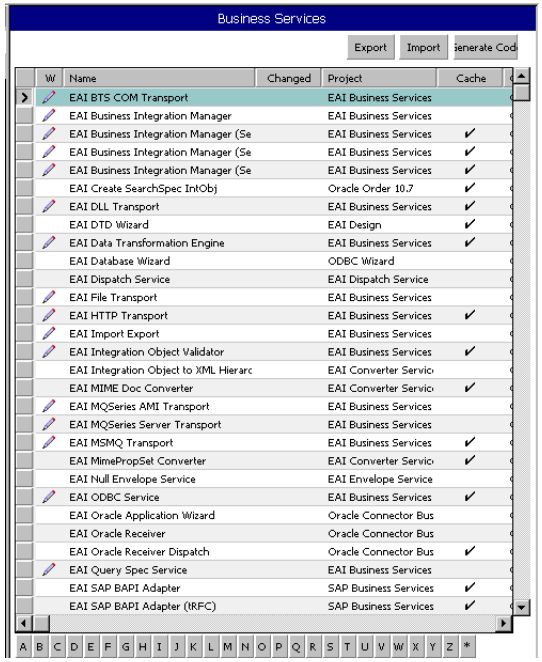
This section describes the steps to import the `EAI TIBCO HTTP Agent` Business Service into Siebel Tools using the supplied Siebel archive. Once the Business Service is imported into Siebel Tools and the Siebel Repository file (srf) is regenerated, it can be accessed by Siebel VB or Siebel eScript code or can be called from Siebel workflow processes.

1. Connect to Siebel Tools as administrator.

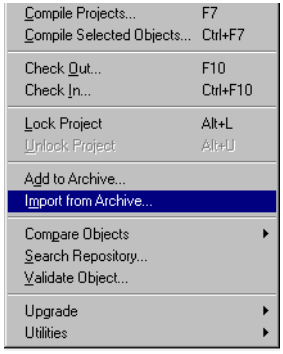
2. Lock the project `EAI Business Service` by selecting the project and checking the locked field.



3. Select `Business Service` from the Object Explorer in the left panel of `Siebel Tools` and search for all Business Services starting with EAI. The following screen shows the list of Business Services that start with EAI.



4. From the **Tools** menu, use the **Import from Archive** option to import the custom Business Service supplied with the adapter installation.



For Siebel 6.2.x and higher versions, the Business Service can be imported from **Repository>Import from Archive**.

5. Select the appropriate archive, based on the version of Siebel and the scripting language you are using, from the folder <*Adapter_Home*>`\siebel`.

If you are using eScript, import the following files:

For Siebel 6.2.x and higher:

```
TIBSiebelAdapterHTTPAgentBusinessService_escript.sif
```

For Siebel 7.0.x:

```
7TIBSiebelAdapterHTTPAgentBusinessService_escript.sif
```

For Siebel 7.5.2:

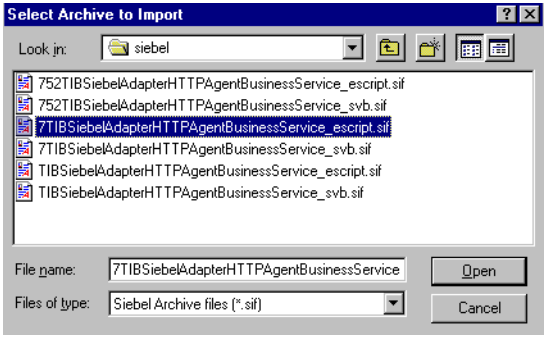
```
752TIBSiebelAdapterHTTPAgentBusinessService_escript.sif
```

For Siebel 7.7.x and 7.8.x:

```
77TIBSiebelAdapterHTTPAgentBusinessService_escript.sif
```

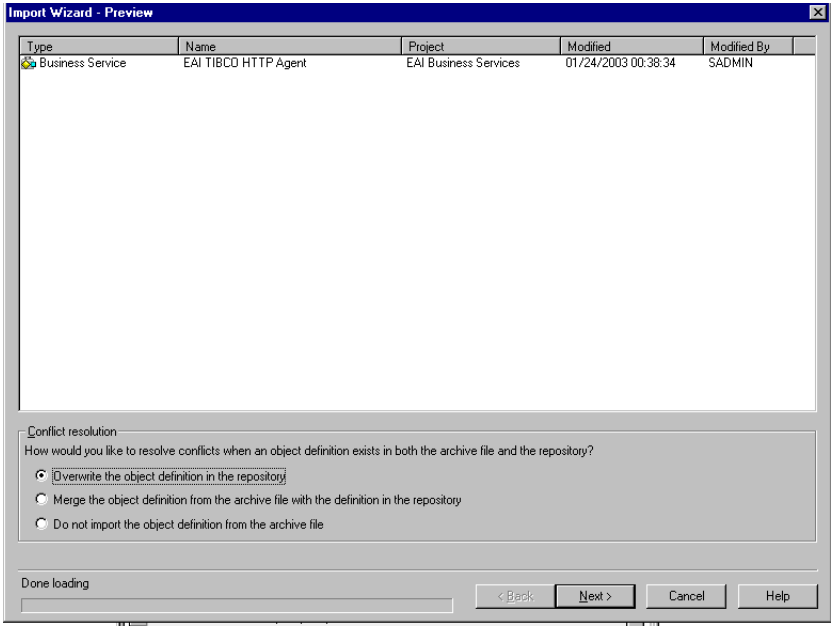
Use the VB Script version if you are using VB Scripting.

On UNIX, VB scripting is not supported. The VB scripts supplied are supported only on Microsoft Windows.



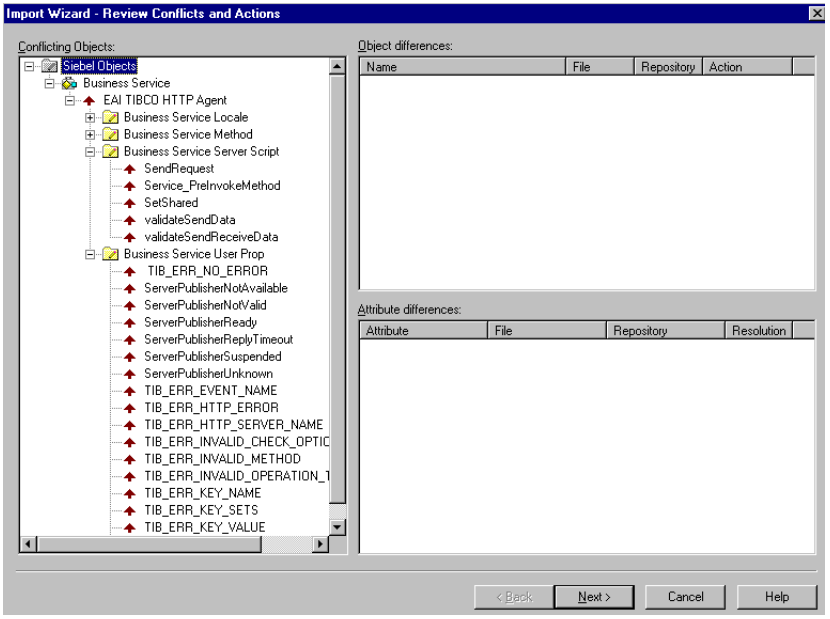
6. Preview the contents included in the Siebel archive as shown in the screen sample that contains the `EAI TIBCO HTTP Agent` Business Service. Click **Next**

to continue. Select the overwrite option if you want to remove an existing version of the Business Service in the Siebel Repository.



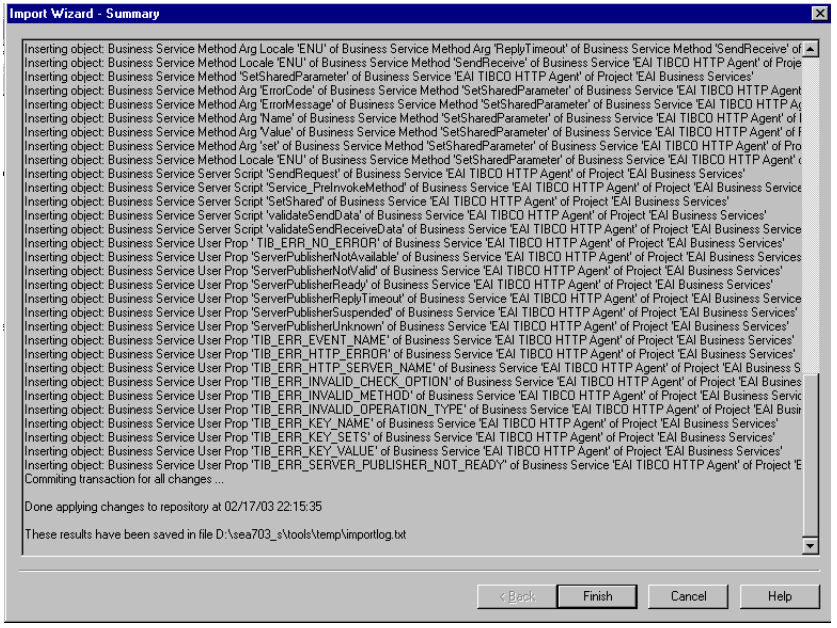
7. Review the details of the Business Service object included in the Siebel archive as shown in the screen. It describes the detail object definitions of the `EAI`

TIBCO HTTP Agent Business Service in a hierarchy tree view. Click **Next** to continue.

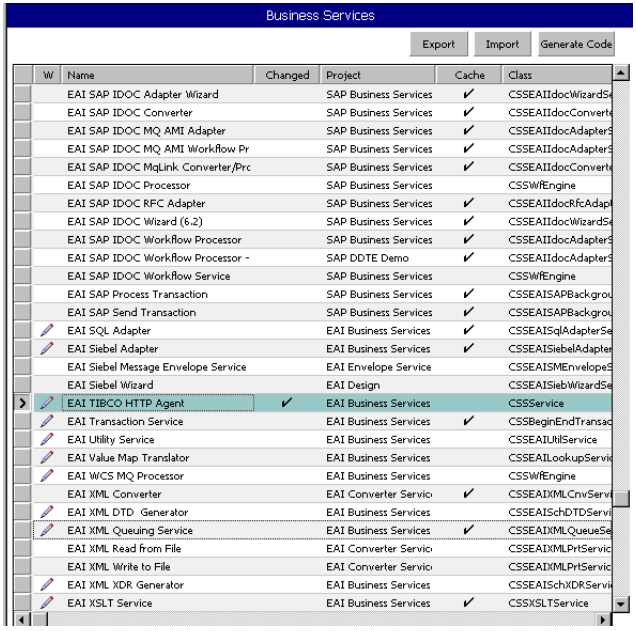


8. Acknowledge the confirmation to modify the current Siebel Repository. Click **Yes** to start the import.

9. Examine the summary of the import log after the import is done. Click **Finish** to complete the import wizard.

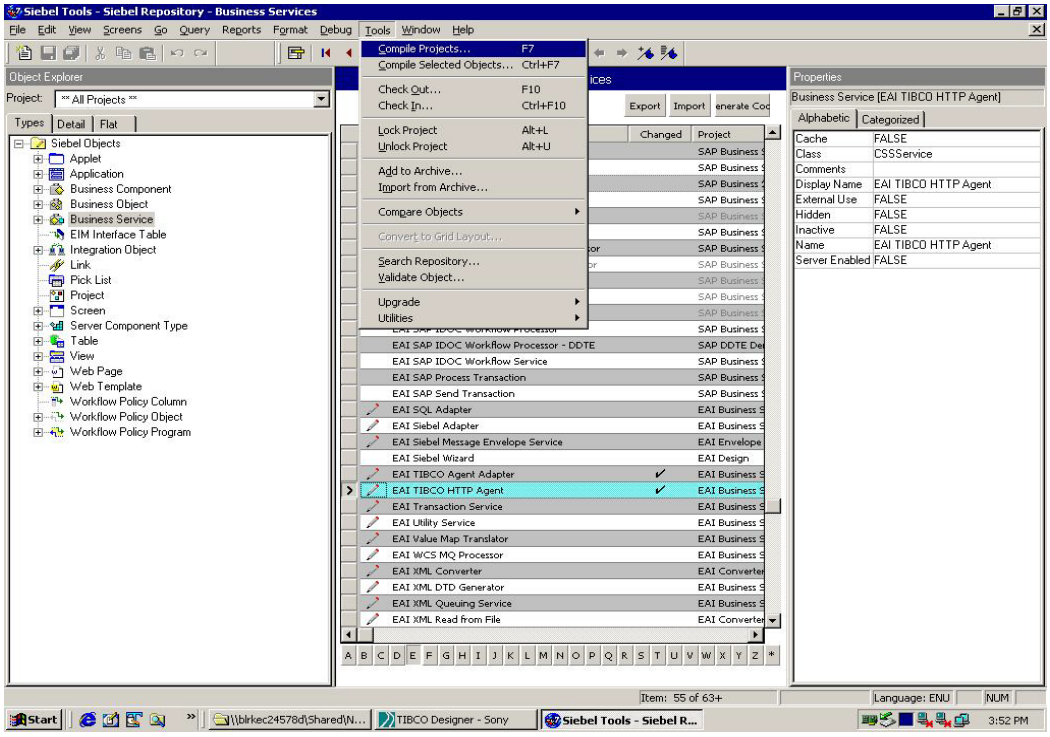


10. Verify that the list of Business Services that starts with EAI is updated with the newly imported `EAI TIBCO HTTP Agent` Business Service.

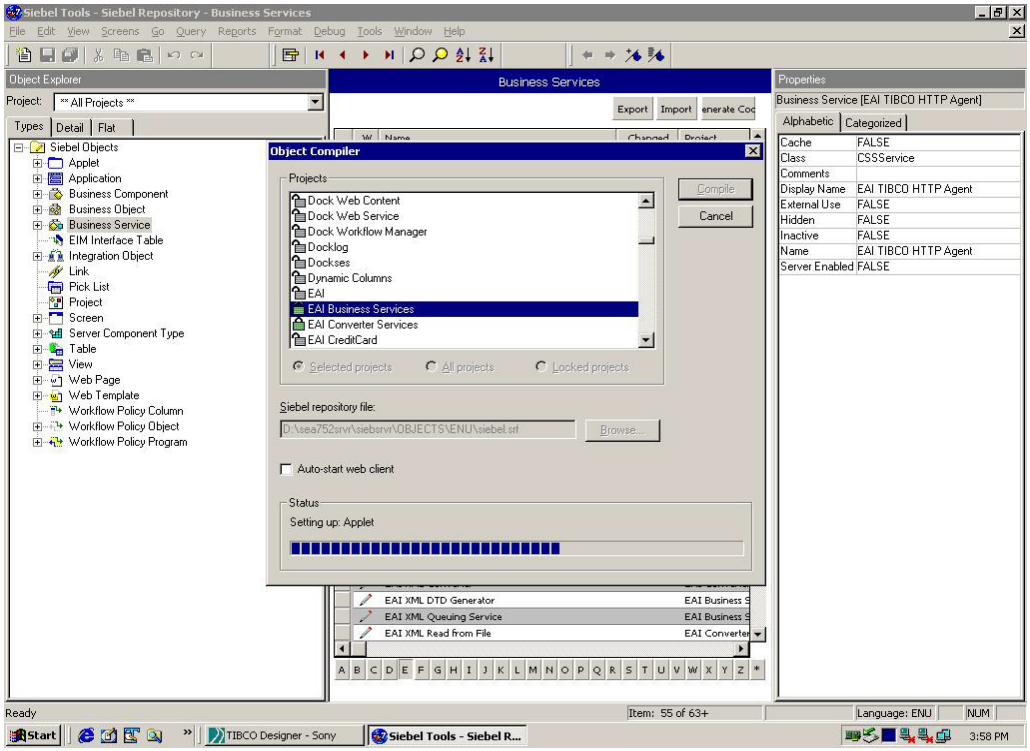


11. The newly imported business service EAI TIBCO HTTP Agent Business Service has to be compiled.

The Siebel server should be stopped to complete this operation.



12. Select the check box `Selected projects`. Select the project `EAI Business Service` shown in figure below. Select the Siebel Server repository(.srf) file and start compile. Similarly, compile the Web Client repository (.srf) file.



The Business service import is now complete.

Testing the EAI TIBCO HTTP Agent Business Service

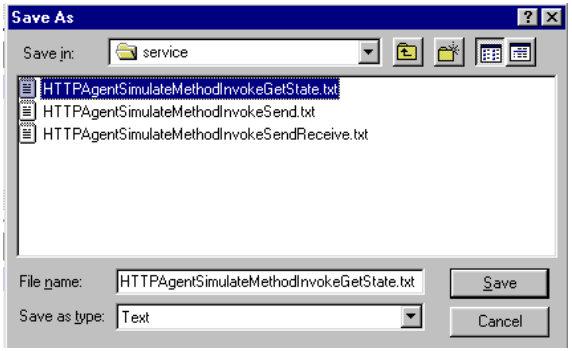
The Siebel Client application provides a facility called Business Service Administration to manage, review and simulate an installed Business Service. This facility helps the user get familiar with the service method interface before using it in other contexts within the Siebel system.

Testing the Business Service for Siebel 6.2.x

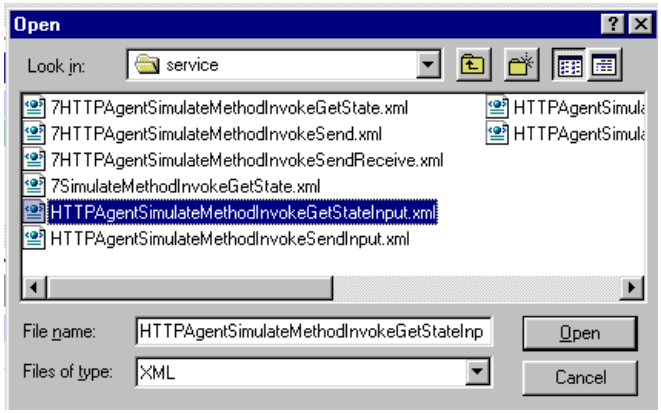
This section describes the steps to test the `EAI TIBCO HTTP Agent` Business Service in the Siebel 6.2.x and higher systems.

1. Login to the Siebel Call Center client using a valid user ID and navigate to the screen **Business Service Administration>Business Service Simulator**.

2. From the top applet titled `Service Methods`, click **Load from File…** to import a sample invocation for the service method `GetState`.
Select `HTTPAgentSimulateMethodInvokeGetState.txt` from the folder *<Adapter_Home>*`/examples/service`. You can also manually add a new record and select the `EAI TIBCO HTTP Agent` from the drop-down list box and choose the corresponding service method to simulate.

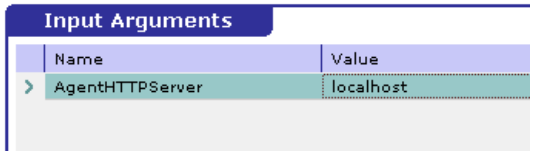


3. Click **Load From File** on the `Input Property Set` applet. Go to the `<Adapter_ Home>\examples\service` directory and select `HTTPAgentSimulateMethodInvokeGetStateInput.xml`



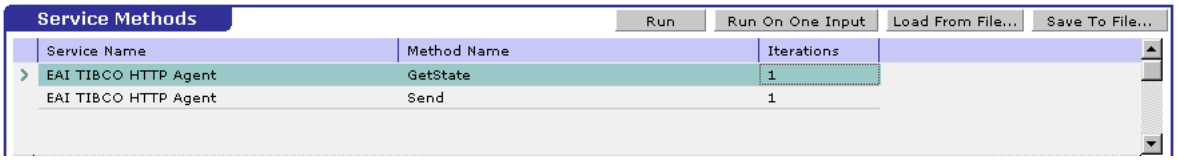
4. Check the `Input Arguments` applet. Change the `AgentHTTPServer` argument with the name of the machine on which the adapter will be started along with the port number.

   For example, If the adapter is started on `myMachine` on port `9191`, change `AgentHTTPServer` from `localhost` to `myMachine:9191`.

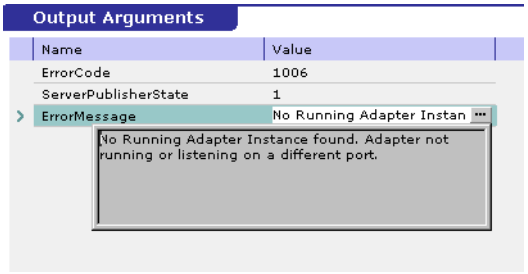


5. Repeat step 2 - 4 for sample invocation for the service method 'Send'. Select `HTTPAgentSimulateMethodInvokeSend.txt` from the same folder.

   The top applet now shows the two service methods available for simulation. The iteration column indicates the number of iterations for the simulating service method that will execute when you click **Run**. This value is set to '1' in both cases.



6. Select the `GetState` service method from the top applet and click **Run**. Examine the **Output Property Set** applet and the **Output Arguments** applet to verify the error code and error message.



7. Provide appropriate Siebel Application Connection parameters in the `runadapter.bat` file provided in the folder:

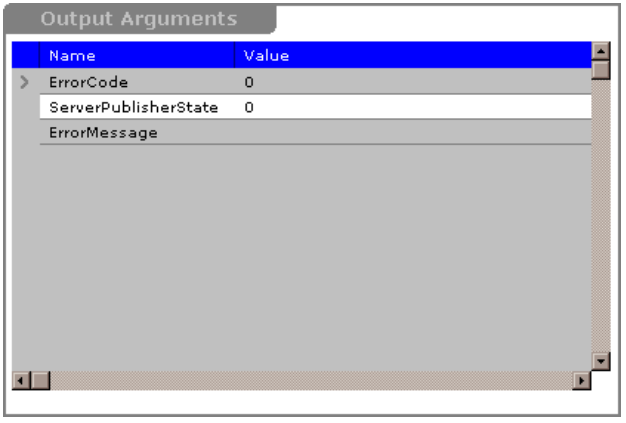
   <*Adapter_Home*>`\examples\pubtest`

   Run the adapter from the command prompt:

   <*Adapter_Home*>`\examples\pubtest\runadapter.bat`

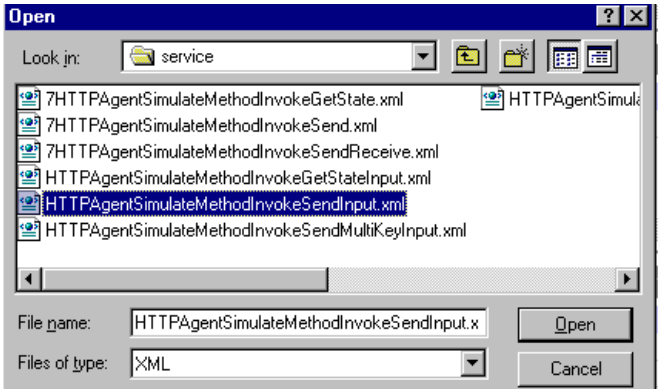
   On UNIX, use `runadapter.sh` file.

8. When the **Application Ready** dialog appears, click **Run** again to simulate the `GetState` service method. Examine the **Output Property Set** applet and the **Output Arguments** applet to verify the error code and error message.



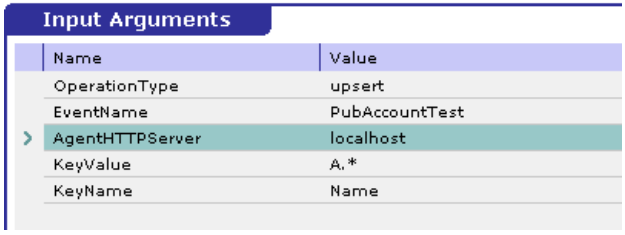
9. To test the `Send` service method, you will need an input Property Set that contains the necessary arguments for generating the publication request. The input arguments are `EventName`, `KeyName`, `KeyValue`, `AgentHTTPServer` and `OperationType`. Click **Load from File…** from the **Input Property Set** applet

and select `HTTPAgentSimulateMethodInvokeSendInput.xml` from the following folder `<Adapter_Home>/examples/service`.



10. Verify the sample input Property Set in the **Input Property Set** applet and the **Input Arguments** applet.
11. It indicates that the `Send service` method simulation will generate a publication request for the Business Event `PubAccountTest`, using a `KeyName` value of `Name` and a KeyValue of `A*` with an `insert` OperationType. The value can easily be altered to simulate different parameters to generate the publication request. Change the `AgentHTTPServer` argument with the name of the machine on which the adapter will be started along with the port number.

    For example, if the adapter is started on `myMachine` on port `9191`, change `AgentHTTPServer` from `localhost` to `myMachine:9191`.

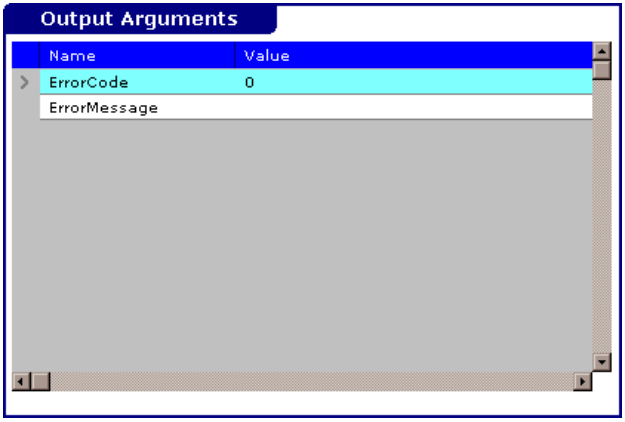


12. Start a message listener for data published from the adapter before submitting the publication request. At a command prompt, enter the following:

```
c:\ > tibrvlisten
domain.pubservices.adsbl.pubtest.PublicationService
```

13. Select the `Send` method on the top applet to start the simulation, click **Run** and watch for message received on subject '`domain.pubservices.adsbl.pubtest.PublicationService`'.

14. Verify that the applet **Output Property Set** and the **Output Arguments** applet display the iteration and error code of '0' indicating the publication request is successfully processed by the adapter.



15. Repeat the simulation for `Send` service method using different key values and watch the output messages captured on subject '`domain.pubservices.adsbl.pubtest.PublicationService`'.
16. Stop the adapter by issuing the following command:

    ```
    tibrvsend _LOCAL.ADSBL.SHUTDOWN.ALL STOP
    ```

Testing the Business Service in Siebel 7

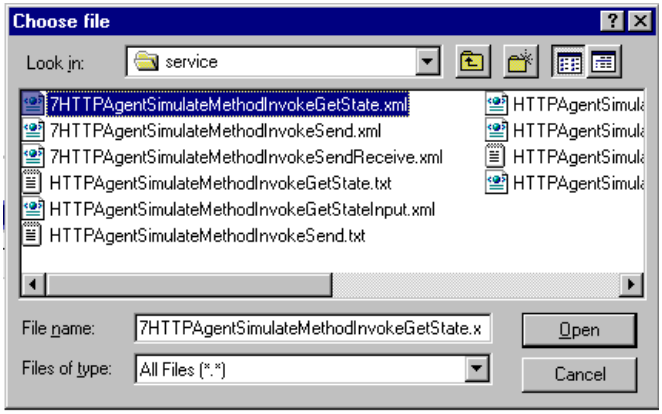
This section describes the steps to test the `EAI TIBCO HTTP Agent` Business Service using this facility in Siebel Client 7 system.

1. Login to the Siebel Call Center client using a valid user ID.
2. Click **View** in the top menu and select **Sitemap** from the drop-down menu. In the Sitemap screen, click **Business Service Administration>Business Service Simulator**.

Figure 14 Siebel Sitemap Screen

3. On the **Service Methods** applet, click **Load From File...** to import a sample invocation for the service method `GetState`. The Load XML File window displays.

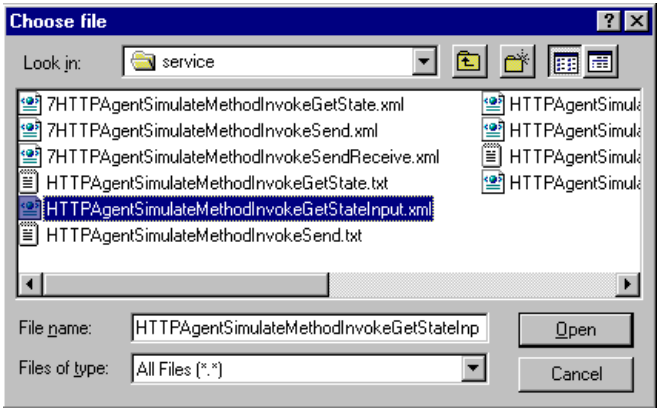
4. Click **Browse**. Go to the `<Adapter_Home>/examples/service` folder and select `SimulateMethodInvokeGetState.xml`. Click **Open** and then click **Import**.



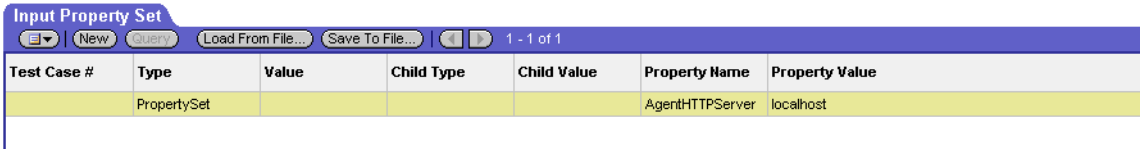
You can also manually add a new record and select `EAI TIBCO HTTP Agent` from the drop-down list and choose the corresponding service method to simulate.

5. To import Input Parameters for the `GetState` method, click **Load From File…** on the **Input Property Set** applet and then go to the `../examples/service` directory and select

HTTPAgentSimulateMethodInvokeGetStateInput.xml.The file is loaded into the **Input Property Set** applet.

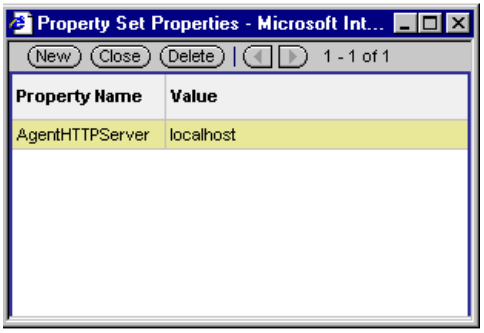


6. In the **Input Property Set** applet, click the **name** in the `Property Name` column and click the adjacent icon that appears.

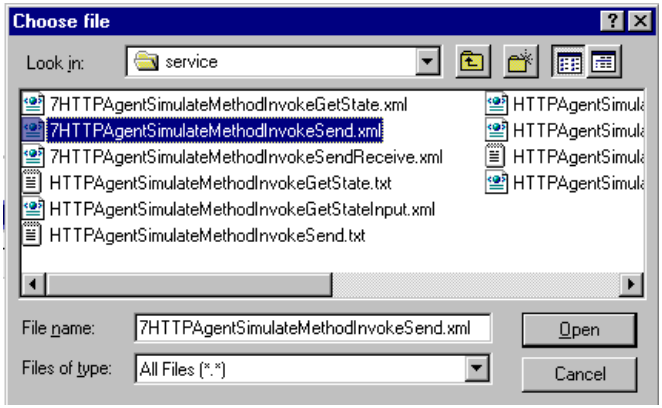


7. The Property Set Properties window displays. Change the `AgentHTTPServer` argument with the name of the machine on which the adapter will be started along with the port number.

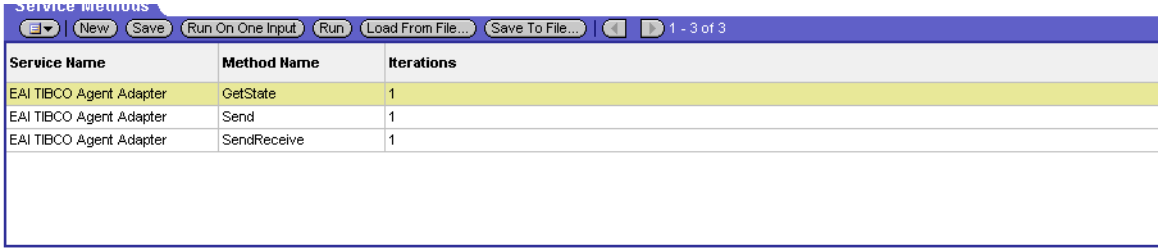
   For example: if the adapter is started on `myMachine` on port `9191`, change `AgentHTTPServer` from `localhost` to `myMachine:9191`.



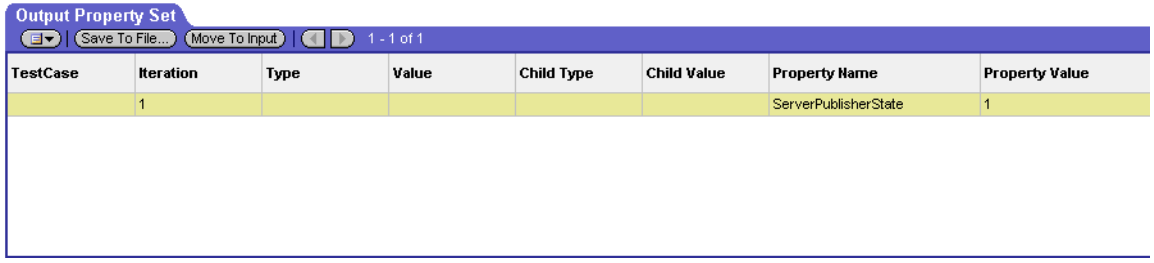
8. Repeat the previous steps for sample invocation for the `Send` service method. Select `SimulateMethodInvokeSend.xml` from the same folder.



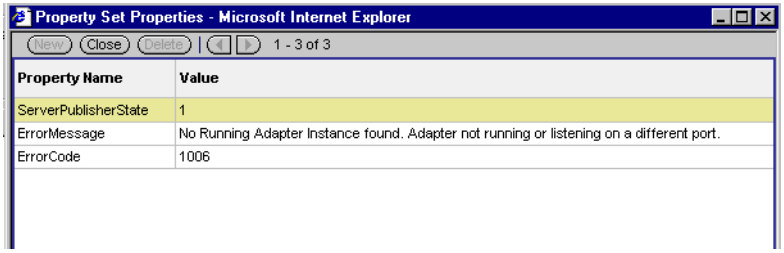
The top applet now shows the two service methods available for simulation. The iteration column indicates the number of iterations for the simulating service method that will execute when you click **Run**. This value is set to '1' in both cases.



9. Select the `GetState` service method from the top applet and click **Run**. Examine the **Output Property Set** applet and the **Output Arguments** applet to verify the error code and error message. The following screen displays.



10. Double-click the `Property Name` to check the error code and error message. They are displayed as shown in the screen below.



11. Provide appropriate Siebel Application Connection parameters in `runadapter.bat` file provided in the folder;

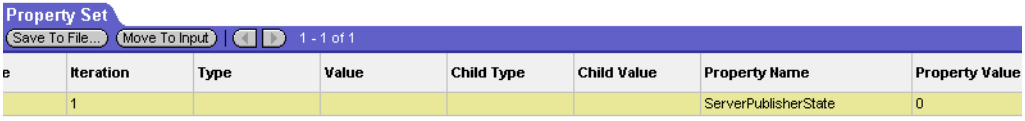
    <*Adapter_Home*>`\examples\pubtest`

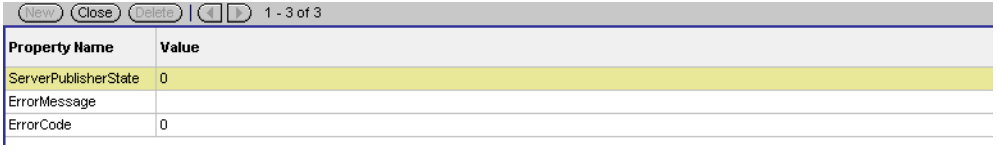
    Run the adapter from the command prompt

    <*Adapter_Home*>`\examples\pubtest\runadapter.bat`

    On UNIX, use `runadapter.sh`

12. When the `Application Ready` dialog appears, click **Run** again to simulate the `GetState` service method. Examine the **Output Property Set** applet and the **Output Arguments** applet to verify the error code and error message, as shown in the screens below.





13. To test the `Send` service method, you will need an input property set that contains the necessary arguments for generating the publication request. The input arguments are `EventName`, `KeyName`, `KeyValue`, `AgentHTTPServer` and `OperationType`. Click **Load from File…** from the **Input Property Set** applet

and select `HTTPAgentSimulateMethodInvokeSendInput.xml` from the folder `<Adapter_Home>/examples/service`.

14. Verify the sample input property set in the **Input Property Set** applet and the **Input Arguments** applet.

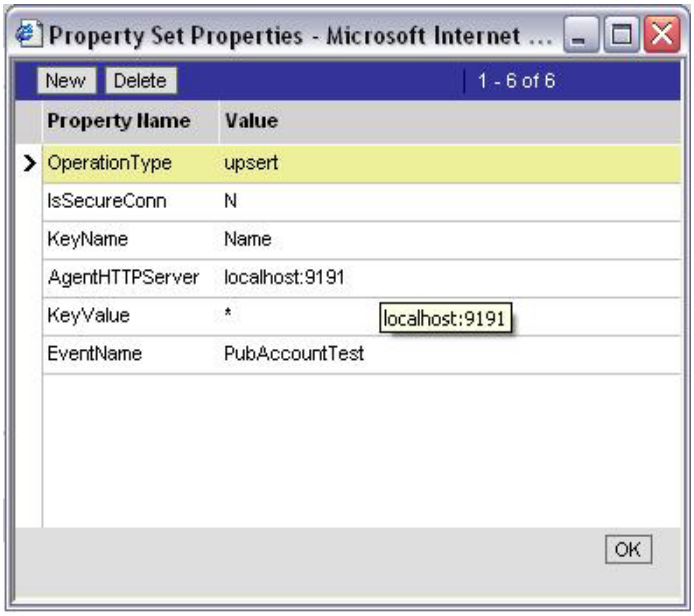
    It indicates that the `Send` service method simulation will generate a publication request for Business Event `PubAccountTest` using `KeyName` of `Name` and `KeyValue` of `A*` with `OperationType` of `insert`. The value can easily be altered to simulate different parameters in generating the publication request.

ut Property Set

New | Save | Load From File... | Save To File... | 1 - 1 of 1

Case #	Type	Value	Child Type	Child Value	Property Name	Property Value
	PropertySet				KeyValue	A.*

15. Double-click the `Property Name` value to check the `KeyValue`. Change the `AgentHTTPServer` argument with the name of the machine on which the adapter will be started along with the port number.
    For example: if the adapter is started on `myMachine` on port `9191`, change `AgentHTTPServer` from `localhost` to `myMachine:9191`.

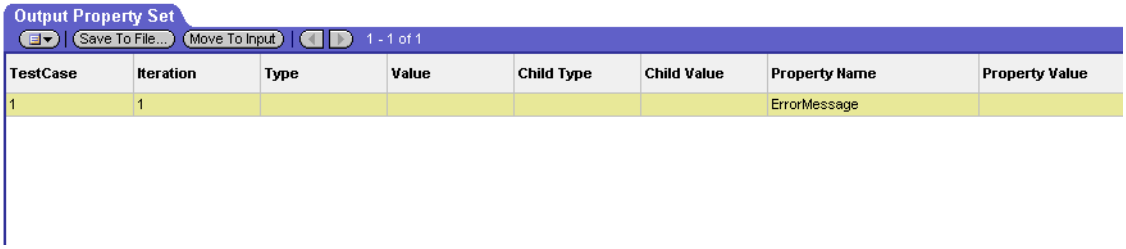


16. Start a message listener for data published from the adapter before submitting the publication request. At a command prompt, enter the following:

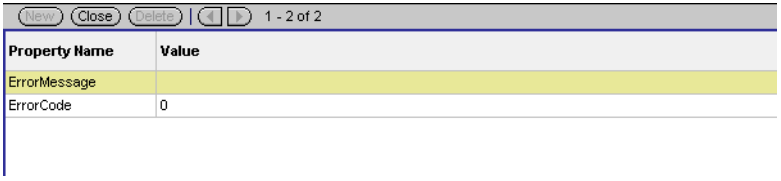
```
c:\ > tibrvlisten
domain.pubservices.adsbl.pubtest.PublicationService
```

17. Select the `Send` method on the top applet to start the simulation, click **Run** and watch for a message received on subject '`domain.pubservices.adsbl.pubtest.PublicationService`'.

18. Verify that the **Output Property Set** applet and the **Output Arguments** applet display the iteration and error code of '0' indicating the publication request is successfully processed by the adapter.



Double click the `Property Name` to check the error message and error code.



19. Repeat the simulation for `Send` service method using different key values and watch the output messages captured on subject '`domain.pubservices.adsbl.pubtest.PublicationService`'.

20. Stop the adapter by issuing the following command:

```
tibrvsend _LOCAL.ADSBL.SHUTDOWN.ALL STOP
```

Using EAI TIBCO HTTP Agent Business Service in Event Script

The Business Service is accessible when called from any Event Script within the Siebel Business Layer or when called from the Siebel Workflow. Refer to the Object Interface Reference in Siebel documentation for details on how to use the Siebel Business Service.

The general mechanism to invoke a service method of a Siebel Business Service is as follows:

- Create a Business Service reference.
- Create an input property set to be used as input argument in the service method invocation.
- Create an output property set to be used as output argument in the service method invocation.
- Populate the input property set with the necessary input arguments of the service method to invoke.
- Invoke the service method.
- Retrieve the output arguments from the output property set.
- Remove the Business Service and the property sets.

The following example code segment written in Siebel escript for the `BusComp_WriteRecord` event script illustrates how to use the `EAI TIBCO HTTP Agent` Business Service to generate a publication request to the adapter to export Siebel data into the TIBCO environment.

```
function BusComp_WriteRecord ()
{
    // Get Id field value for invoking business event
    var sId = GetFieldValue("Id");

    // Create TIBCO Siebel Adapter business service
    var oTIBService = TheApplication().GetService("EAI TIBCO HTTP
    Agent");

    // Prepare input for invoking business event publication
    var oInput = TheApplication().NewPropertySet();
    oInput.SetProperty("EventName", "PubAccountTest");
    oInput.SetProperty("KeyName", "Id");
    oInput.SetProperty("KeyValue", sId);
    oInput.SetProperty("OperationType", "upsert");
    oInput.SetProperty("AgentHTTPServer", "adaptermachine:port");
```

Enter the name of the machine where the adapter is running as `adaptermachine`. For `port`, enter the number of the port, which has been configured to listen to HTTP requests in the adapter configuration

```
    // Prepare output for capture invocation error
    var oOutput = TheApplication().NewPropertySet();

    // Invoke method for publishing business event
    oTIBService.InvokeMethod("Publish Business Event", oInput,
    oOutput);

    var iRet = ContinueOperation;

    // Check for error in invocation
    if (oOutput.GetProperty("ErrorCode") !=
    oTIBService.GetProperty("TIB_ERR_NO_ERROR"))
    {
        TheApplication().MsgBox("Error [" +
        oOutput.GetProperty("ErrorCode") + "]: " +
        oOutput.GetProperty("ErrorMessage"));
    }

    // Destruct objects
    oTIBService = null;
    oInput = null;
    oOutput = null;

return iRet;
}
```

The example event scripts can be located in the examples directory:

- Siebel eScript — *<Adapter_Home>\examples\eScript*
  — *<Adapter_Home>\examples\svb.* (to be used only on Microsoft Windows)

On UNIX only eScript can be used. To invoke the script on UNIX, compile the `.srf` with the event script and copy the `.srf` to the Siebel Installation on UNIX.

Using the EAI TIBCO HTTP Agent Business Service in Workflow

The Siebel Business Service can also be called from a Siebel workflow process. Invocation of a service method is seen as one unit that participates in a Siebel workflow process as a workflow step. It uses the output from a workflow step or the workflow process properties as input arguments for the service method to be invoked.

The output arguments resulting from the service method invocation are used as the input to another workflow step or are used in setting workflow process properties. You can also create workflow policies and actions that control the execution of workflow processes in batch mode or when certain events occur; such as inserting, updating or deleting an account.

The `EAI TIBCO HTTP Agent` Business Service makes it possible to generate a publication request to the adapter on the network from participating in a Siebel workflow process that facilitates the exchange of Siebel data with other external systems using the TIBCO messaging middleware.

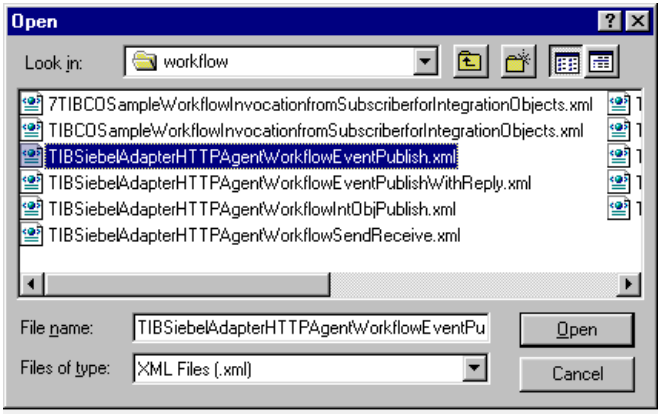
Refer to your Siebel documentation to learn more about Siebel workflow.

Siebel 6.2.x System

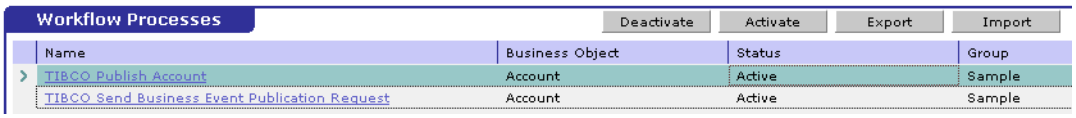
This section describes the steps to use the `EAI TIBCO HTTP Agent` Business Service in the supplied sample Siebel workflow process, in a Siebel 6.2.x and higher systems.

1. Login to the Siebel Call Center client using a valid user ID and navigate to the screen **Siebel Workflow Administration>Workflow Processes>All Processes**.

2. From the top applet titled **Workflow Processes**, click **Import** to import the supplied sample Siebel workflow process.
3. Select `TIBSiebelAdapterHTTPAgentWorkflowEventPublish.xml` from the folder `<Adapter_Home>/examples/workflow`.
4. Repeat the import procedure for `TIBSiebelAdapterHTTPAgentWorkflowIntObjPublish.xml`.



5. Verify that the sample Siebel workflow processes are imported as TIBCO Send Business Event publication request and TIBCO Publish Account.

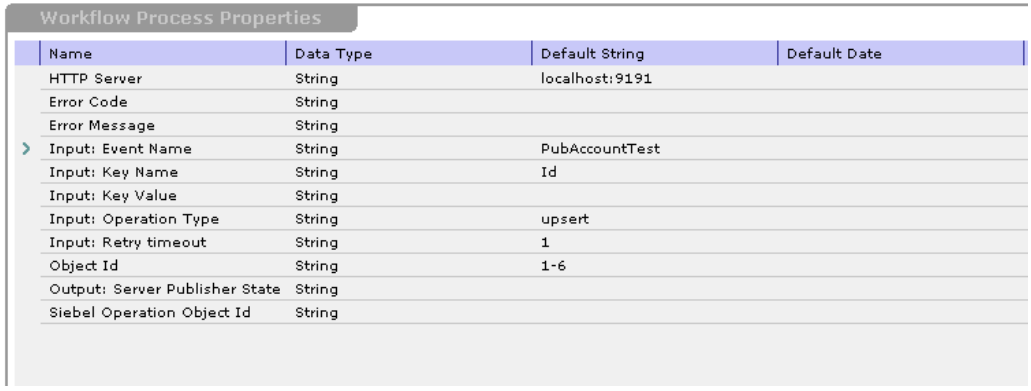


The sample Siebel workflow process uses the `EAI TIBCO HTTP Agent` Business Service to query the state of the adapter on the network and submit a Business Event publication request if the adapter is available. It also handles any error returned from the Business Service method by displaying an error message dialog to the user.

6. Change the `AgentHTTPServer` argument with the name of the machine on which the adapter will be started along with the port number.

   For example: if the adapter is started on `myMachine` on port `9191`, change `AgentHTTPServer` from `localhost` to `myMachine:9191`.

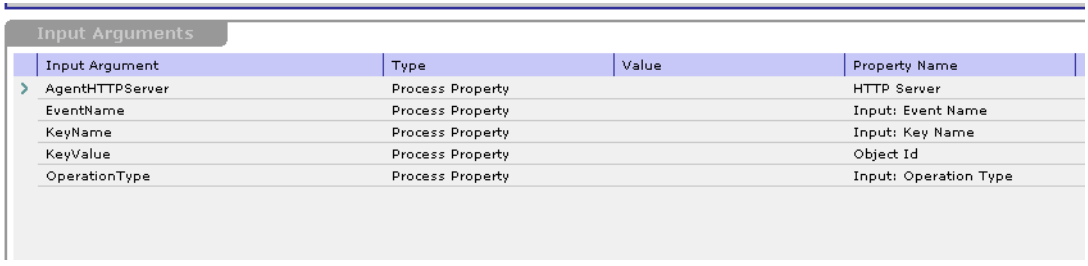
The following shows the list of process properties for operating the workflow process:



Workflow Process Properties

Name	Data Type	Default String	Default Date
HTTP Server	String	localhost:9191	
Error Code	String		
Error Message	String		
Input: Event Name	String	PubAccountTest	
Input: Key Name	String	Id	
Input: Key Value	String		
Input: Operation Type	String	upsert	
Input: Retry timeout	String	1	
Object Id	String	1-6	
Output: Server Publisher State	String		
Siebel Operation Object Id	String		

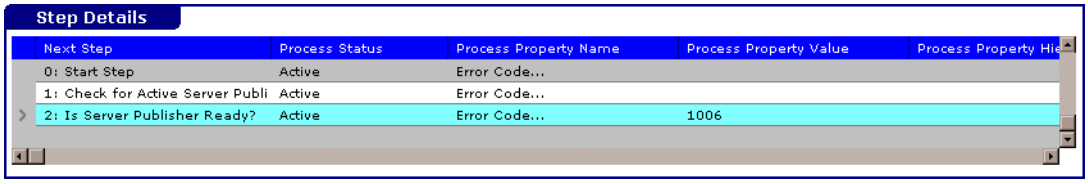
The following screen shows input arguments to the Business Service `Send` method for step 3, `Publish Business Event` of the workflow process.



Input Arguments

Input Argument	Type	Value	Property Name
AgentHTTPServer	Process Property		HTTP Server
EventName	Process Property		Input: Event Name
KeyName	Process Property		Input: Key Name
KeyValue	Process Property		Object Id
OperationType	Process Property		Input: Operation Type

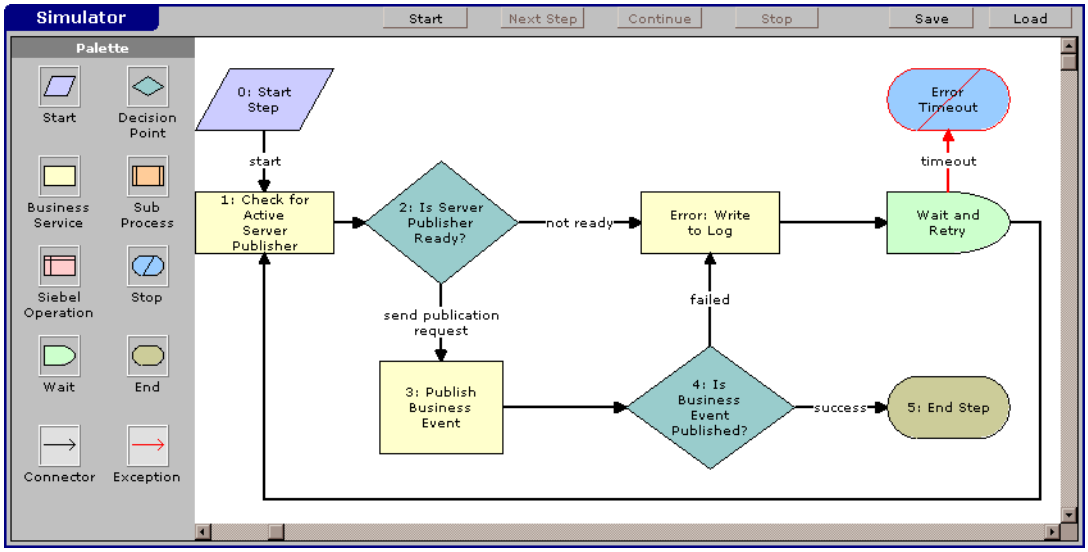
7. Select **Process Simulator** from the left pane to simulate the workflow process.
8. Check if the adapter has been started before starting the simulation.
9. Click **Start** and continue with **Next Step** until the process is done. Check the `Process Property Name` in the **Step Details** applet to examine the process properties in between steps.



Step Details

Next Step	Process Status	Process Property Name	Process Property Value	Process Property Hie
0: Start Step	Active	Error Code...		
1: Check for Active Server Publi	Active	Error Code...		
2: Is Server Publisher Ready?	Active	Error Code...	1006	

10. Examine the process properties in between steps by clicking on the `Process Property Name` on each step. The following process property detail shows that there is no running adapter running on the network.



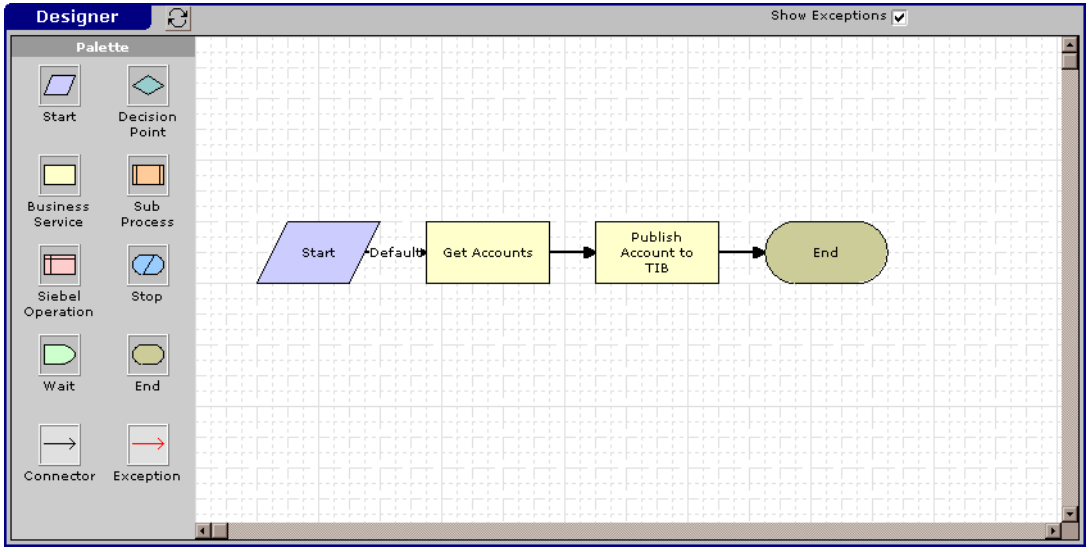
11. Provide appropriate Siebel Application Connection parameters in `runadapter.bat` file provided in the folder: <*Adapter_Home*>`\examples\pubservices`

    Run the adapter from the command prompt

    <*Adapter_Home*>`\examples\pubservices\runadapter.bat`

    On UNIX, use `runadapter.sh` file.

12. Repeat the simulator for the sample workflow process 'TIBCO Publish Account'.



13. The sample uses the `SiebelMessage` output integration object from the step `GetAccount` generated from `EAI Siebel Adapter` as input into the `EAI TIBCO HTTP Agent`. It iterates through the account records in the `SiebelMessage` argument and generates publication requests using the value of the KeyField as Name.

14. Repeat the simulator for the sample workflow process `TIBCOSendReceiveAccountHomePage`. Import this sample workflow process from `TIBSiebelAdapterHTTPAgentSendReceive.xml`.

    This sample workflow process uses the `SendReceive` method to receive a string reply from an external implementation. The string reply is used to update the home page of the target account. In this scenario, the adapter acts as a request-reply client. The adapter publishes a request over wire and waits for the reply from an external application, which is acting as an Request-Response server.

15. To simulate the implementation of the Request-Response server to return the reply string as the account home page, configure an TIBCO IntegrationManager Process, which reads the request from the adapter, and sends the reply as a String. Refer to the TIBCO IntegrationManager transform, `GetHomePage` in `rpcservices.dat` (This dat file is provided with the examples in the location, <*Adapter_Home*>`\examples`).

    To test this process:

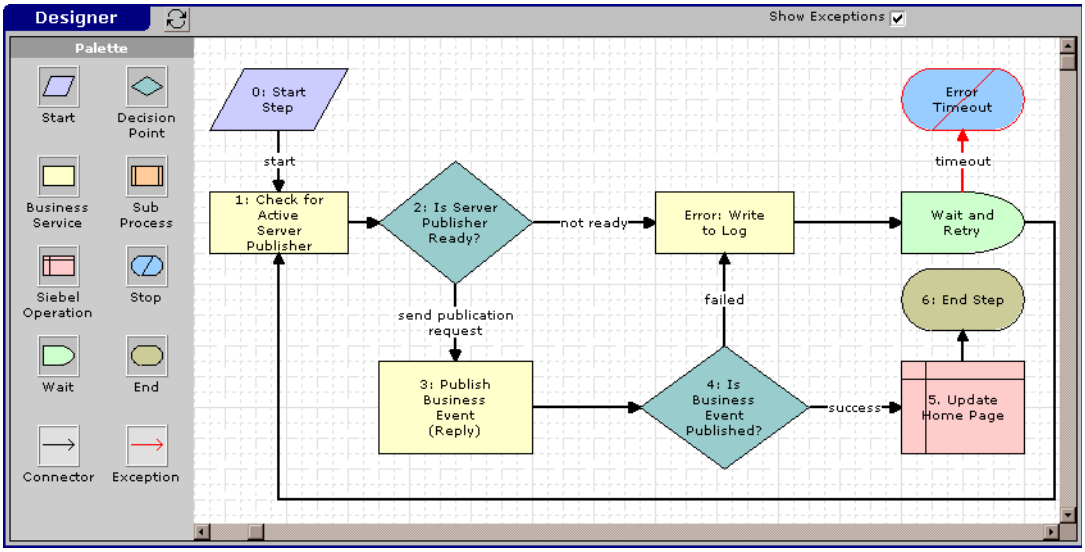
Provide appropriate Siebel Application Connection parameters in `runadapter.bat` file provided in the folder:

<*Adapter_Home*>`\examples\rpcsamples`

Run the adapter from the command prompt

<*Adapter_Home*>`\examples\rpcsamples\runadapter.bat`

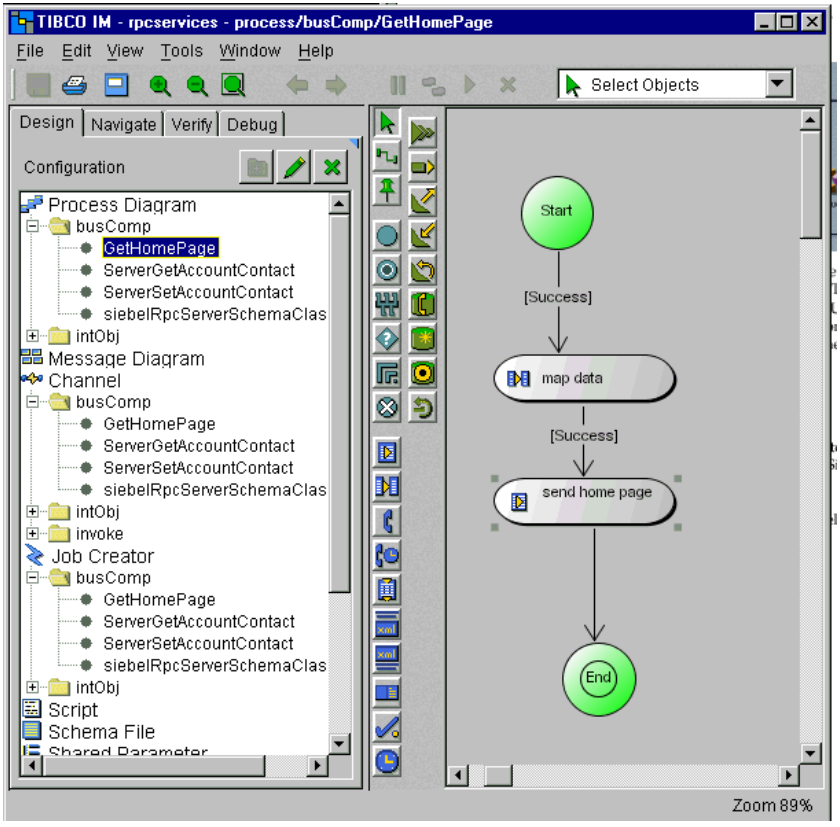
On UNIX, use `runadapter.sh` file.



16. Start the TIBCO IntegrationManager. Connect to sample `rpcservices.dat` provided with the adapter installation in folder

    <*Adapter_Home*>\examples.

Start the TIBCO IntegrationManager engine from the debug panel. Invoke the Workflow Process from the Workflow process simulator. Verify the output property.

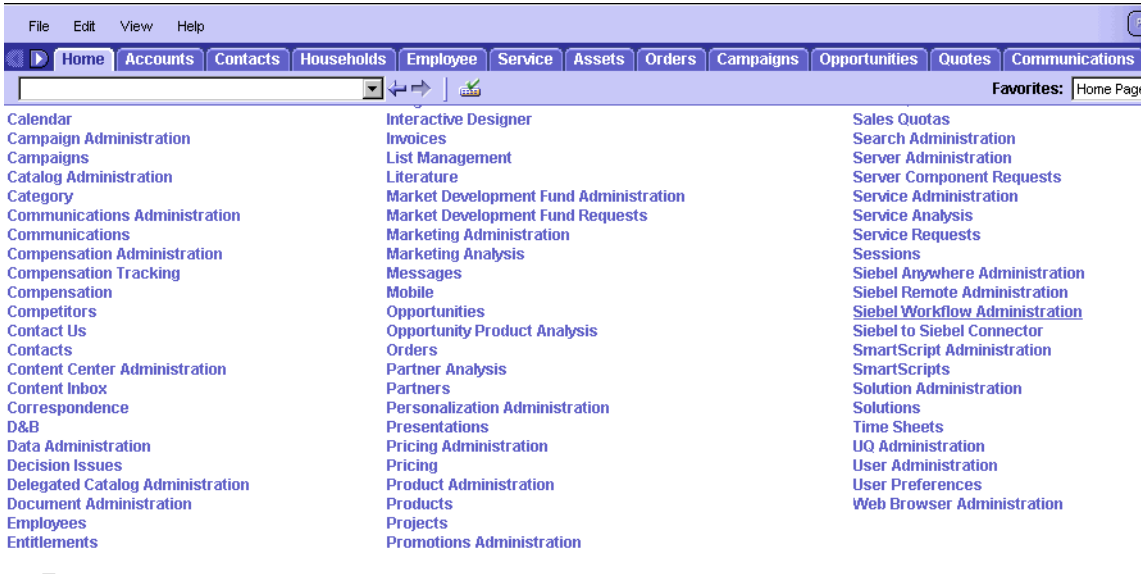


Siebel Client 7

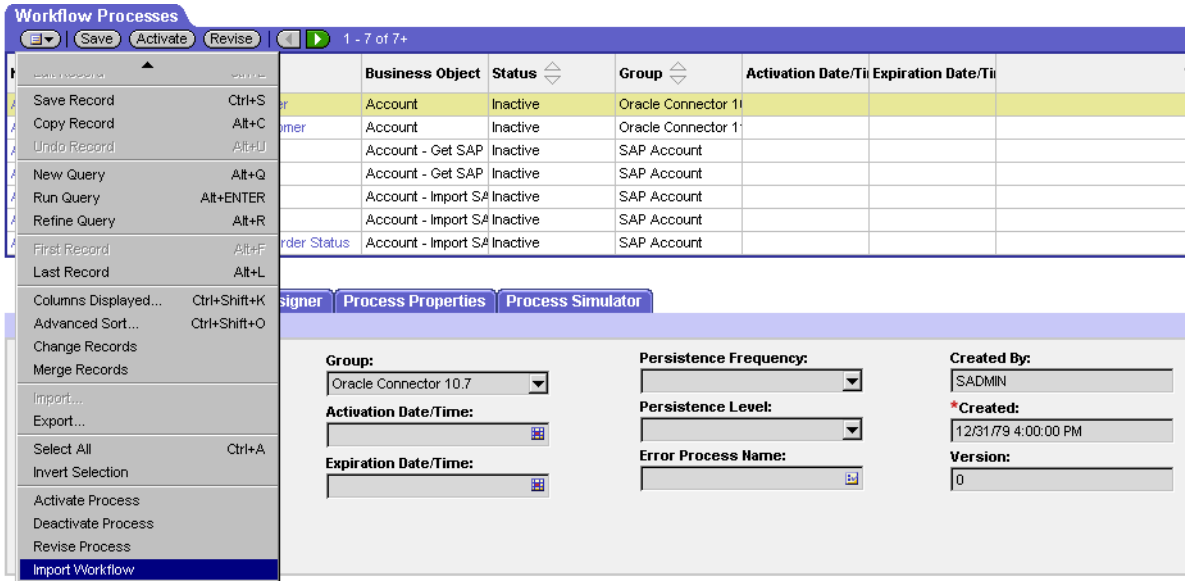
This section describes the steps to use the `EAI TIBCO HTTP Agent` Business Service in the sample Siebel workflow process provided with the adapter installation, in a Siebel Client 7 system.

1. Login to the Siebel Call Center client using a valid user ID.

2. Click **View** in the top menu and select **Sitemap** from the drop-down menu. In the Sitemap screen, click **Siebel Workflow Administration>Workflow Processes** as shown in the screens below.

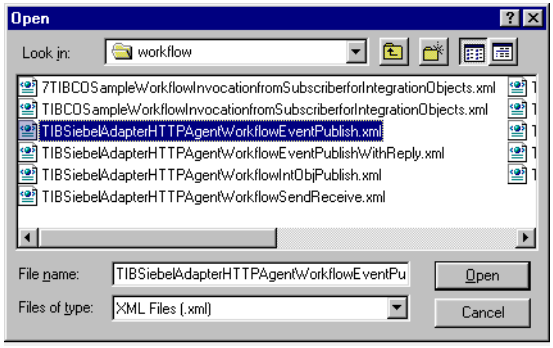


3. In the **Workflow Processes** applet, click **New** (indicated by a 'down' arrow) and select **Import Workflow** to import the supplied sample Siebel workflow process.



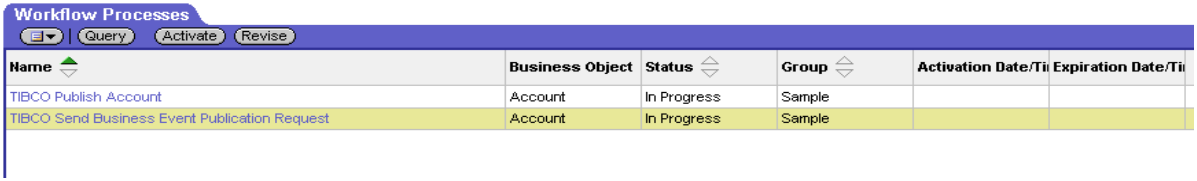
The following dialog box appears.

4. Click **Browse** and select `TIBSiebelAdapterHTTPAgentWorkflowEventPublish.xml` from the folder `<Adapter_Home>/adapter/adsbl/<version_num>/examples/workflow`.



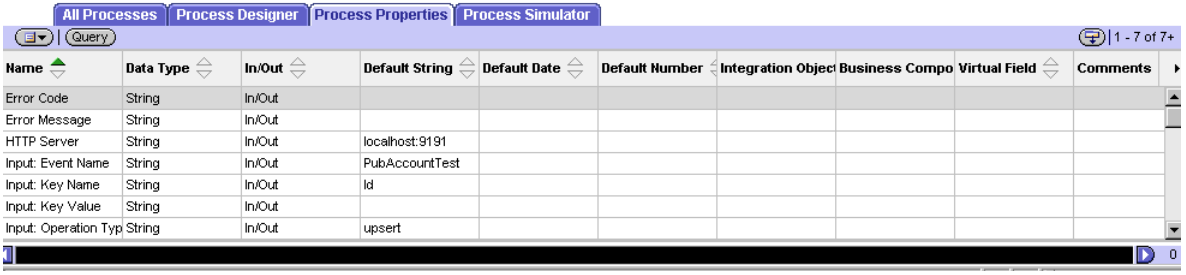
5. Click **Open** and then click **Import**.

6. Repeat the import procedure for `TIBSiebelAdapterHTTPAgentWorkflowIntObjPublish.xml`.
7. Verify that the sample Siebel workflow process is imported as `TIBCO Send Business Event publication request`, and `TIBCO Publish Account`.

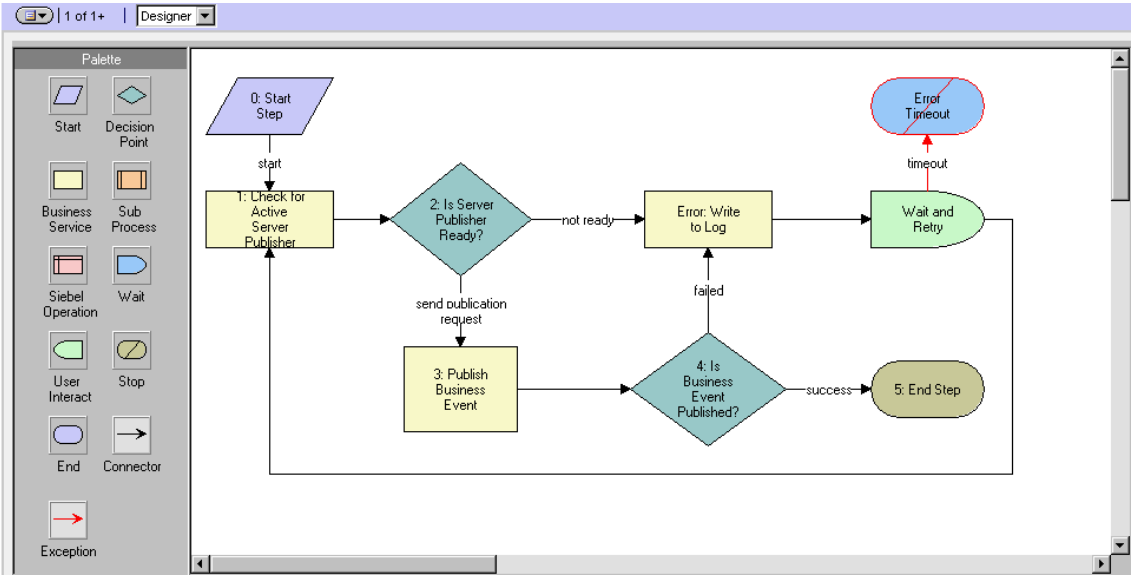


The sample Siebel workflow process uses the `EAI TIBCO HTTP Agent` Business Service to query the availability of the adapter on the network and submit a Business Event publication request if available. It also handles any error returned from the Business Service method by displaying an error message dialog to the user.

Change the `AgentHTTPServer` argument with the name of the machine on which the adapter will be started along with the port number.
For example: if the adapter is started on `myMachine` on port `9191`, change `AgentHTTPServer` from `localhost` to `myMachine:9191`. The following screen shows the list of process properties for operating the workflow process:



8. Select the **Process Simulator** tab to simulate the workflow process.



9. Click **Start** and continue with **Next Step** until the process is done. Check the `Process Property Name` in the **Step Details** applet to examine the process properties in between steps.

10. Examine the process properties in between steps by clicking on `Process Property Name` for each step.

    The following process property detail shows that there is no adapter running on the network.

Error Message	No running Server Publisher instance detected on the network.Please start the Server Publisher.
Error Code	1006
Input: Retry timeout	1

11. Start the adapter and start the process again.

    Provide appropriate Siebel Application Connection parameters in `runadapter.bat` file provided in the folder:

    <Adapter_Home>`\examples\pubtest`

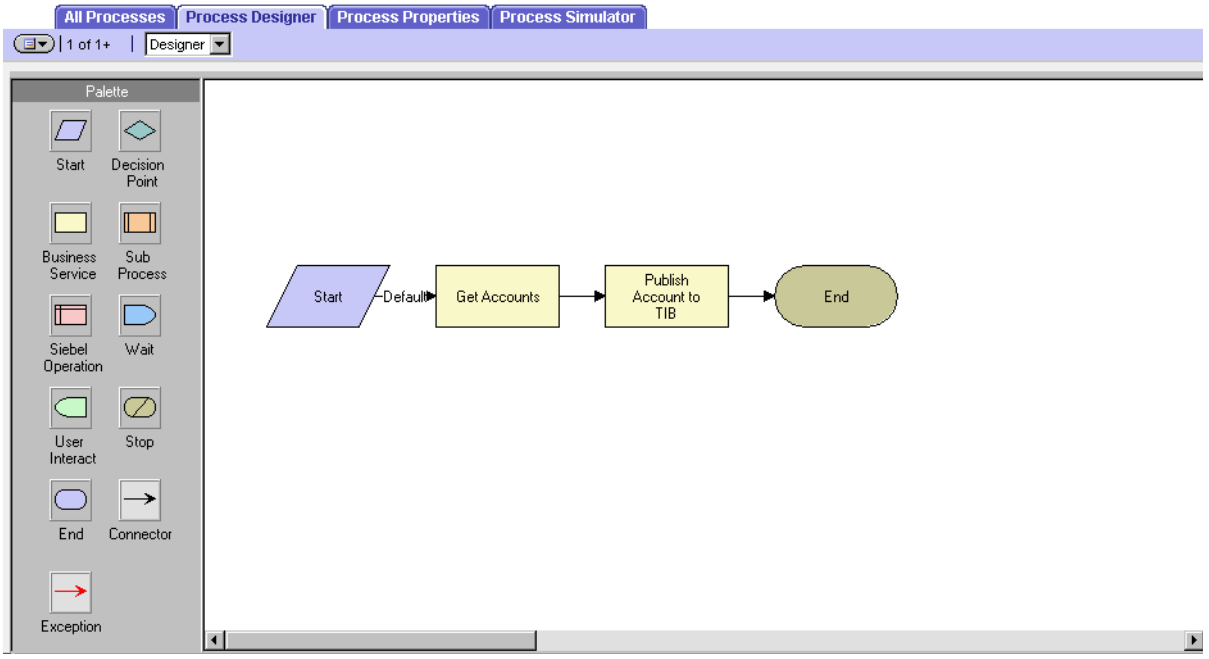
    Run the adapter from the command prompt

    <Adapter_Home>`\examples\pubtest\runadapter.bat`

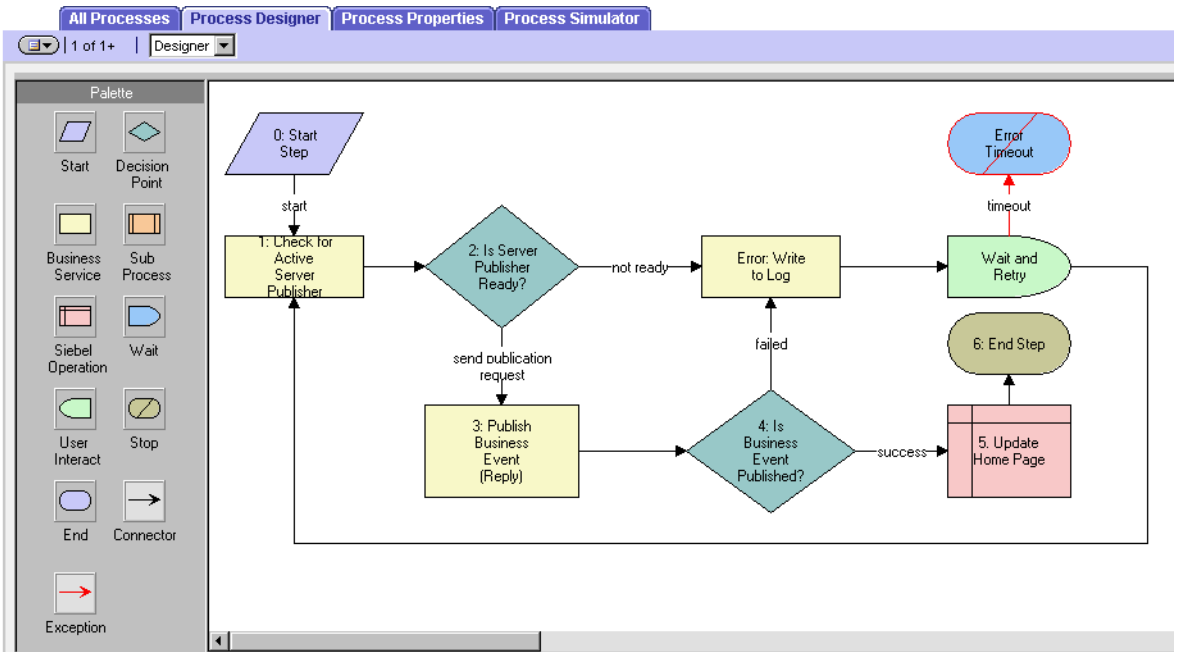
    On UNIX, use `runadapter.sh` file.

12. Repeat the simulator for the sample workflow process TIBCO Publish Account.
13. Import the sample workflow process from `TIBSiebelAdapterHTTPAgentWorkflowIntObjPublish.xml`.

    The sample uses the `SiebelMessage` output integration object from the step `GetAccount` generated from `EAI Siebel Adapter` as input into the EAI TIBCO Business Service. It iterates through the account records in the `SiebelMessage` argument and generates publication requests using the value of the `KeyField` as `Name`.



14. Repeat the simulator for the sample workflow process `TIBCOSendReceiveAccountHomePage`. Import this sample workflow process from `TIBSiebelAdapterHTTPAgentSendReceive.xml`.



This sample workflow process uses the `SendReceive` method to receive a string reply from an application serving as a Request-Response server. The string reply is used to update the home page of the target account.

In this scenario, the adapter acts as a request-reply client. The adapter will publish a request over the wire and wait for the reply from an external application, which is acting as an Request-Response server.

15. To simulate the implementation of Request-Response server to return the reply string as the account home page, configure a TIBCO IntegrationManager Process, which will read the request from the adapter, and send the reply as a `String`.

    To test this service,

    a. Provide appropriate Siebel Application Connection parameters in `runadapter.bat` file provided in folder

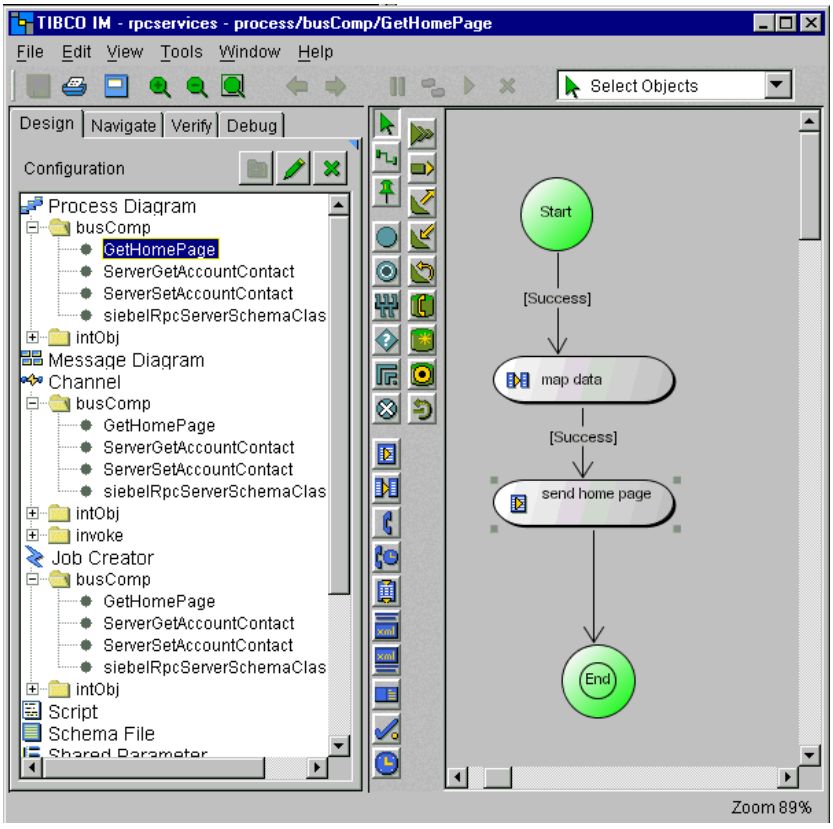
       <Adapter_Home>`\examples\rpcsamples`

    b. Run the adapter from the command prompt

       <Adapter_Home>`\examples\rpcsamples\runadapter.bat`

c. Start the TIBCO IntegrationManager. Connect to the sample `rpcservices.dat` provided with the adapter installation in the folder <*Adapter_home*>`\examples`.

d. Start the TIBCO IntegrationManager engine from the debug panel.



16. Invoke the Workflow Process from the Workflow process simulator. Verify the output property.

Status Codes for EAI TIBCO HTTP Agent Business Service

EAI TIBCO HTTP Agent Business Service returns various status codes on executing the `getState()`, `send()`, and `sendReceive()` methods. These status codes map to different conditions. The following table contains descriptions for all the status codes. For a list of TIBErrorCodes, refer to the section, Error Codes for the Request-Response Operations, page 378.

Table 20 List of Status Codes

Error Code	Error Description
1001	No running adapter instance found. Adapter not running or listening on a different port.
1002	Missing or invalid Business Event Name.
1003	Invalid option for `Check Adapter Availability`. The value should be either `TRUE` or `FALSE`.
1005	Missing or invalid Business Event key value.
1006	Missing or invalid HTTP Agent Server Name.
1008	Missing input Siebel message.
1010	Missing key name/value pairs property set.

Chapter 9 Monitoring the Adapter Using TIBCO Hawk

This chapter explains how to use TIBCO Hawk microagents to monitor and manage the adapter.

Topics

Overview

TIBCO Hawk is a sophisticated tool for enterprise-wide monitoring and managing of all distributed applications and systems. System administrators can use it to monitor adapters in a wide area network of any size. TIBCO Hawk can be configured to monitor system and adapter parameters and to take actions when predefined conditions occur. These actions include: sending alarms that are graphically displayed in the TIBCO Hawk display, sending E-mail, paging, running an executable, or modifying the behavior of a managed adapter.

Unlike other monitoring applications, TIBCO Hawk relies on a purely distributed intelligent agent architecture using publish or subscribe to distribute alerts. TIBCO Hawk uses TIBCO Rendezvous for all messaging and thus gains the benefits and scalability from the TIBCO Rendezvous features of publish or subscribe, subject name addressing, interest-based routing, and reliable multicast.

TIBCO Hawk is a purely event-based system that uses alerts. The agents are configured with rules that instruct them on everything from what and how to monitor to what actions to take when problems are discovered. Thus the workload is fully distributed throughout the enterprise. Every agent is autonomous in that it does not depend on other components to perform its functions.

The TIBCO Hawk Enterprise Monitor consists of these components:

- **Display**—The GUI front end that displays alarms and provides editors to create rule bases, create tests, view messages, and invoke microagents to request information or initiate an action.
- **Agents**—Intelligent processes that perform monitoring and take actions as defined in rules.
- **Rulebases**—Rules that are loaded by agents to determine agent behavior.
- **Application Management Interface (AMI)**—Manages network applications via TIBCO Rendezvous and supports communication between a network application and monitoring TIBCO Hawk agents, including the ability to examine application variables, invoke methods, and monitor system performance.
- **Microagents**—Feed information back to TIBCO Hawk and expose action methods to rulebases.

  For more information, see the TIBCO Hawk documentation.

Starting TIBCO Hawk Software

The TIBCO Hawk agent can be configured to start automatically during the system boot cycle. See the *TIBCO Hawk Installation and Configuration Guide* for information about starting TIBCO Hawk.

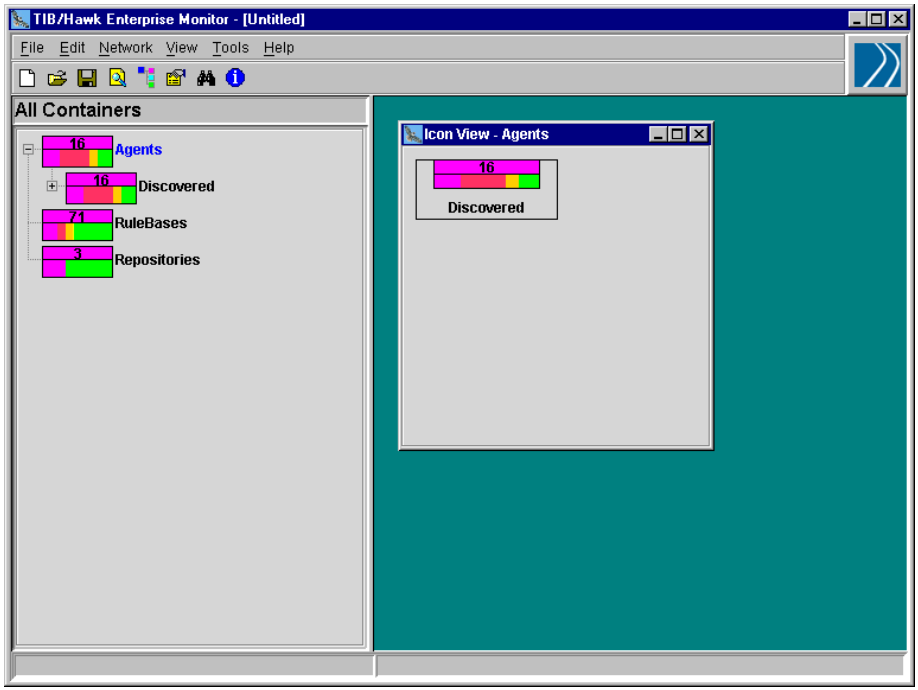
The *TIBCO Hawk Administrator's Guide* explains how to start the TIBCO Hawk Display.

The guides are included in your TIBCO Hawk software installation area.

The Auto-Discovery Process

After you start an instance of TIBCO Hawk Display, it continually discovers machines running TIBCO Hawk Agents on your network. Container icons are created for each agent, and arranged hierarchically in clusters. By default, agent icons are clustered according to subnets.

At first, the Agents container is empty. Its counter displays a value of zero and, on the right, the Discovered counter is also at zero. Both icons are initially green in color to show that no alerts, or warning messages, are in effect. As agents are discovered, the counters increment to reflect the current number of discovered agents.



Monitored network nodes are arranged in a hierarchical tree of containers. Clicking a container in the left panel displays nested items on the right.

Icon colors change to reflect the highest level of alert found on discovered agents. For explanations of icon elements and characteristics, see your *TIBCO Hawk Administrator's Guide*.

Invoking Microagent Methods

A set of default microagents is loaded when a TIBCO Hawk Agent is started. When you install and start the adapter, its microagents are dynamically added to the local agent.

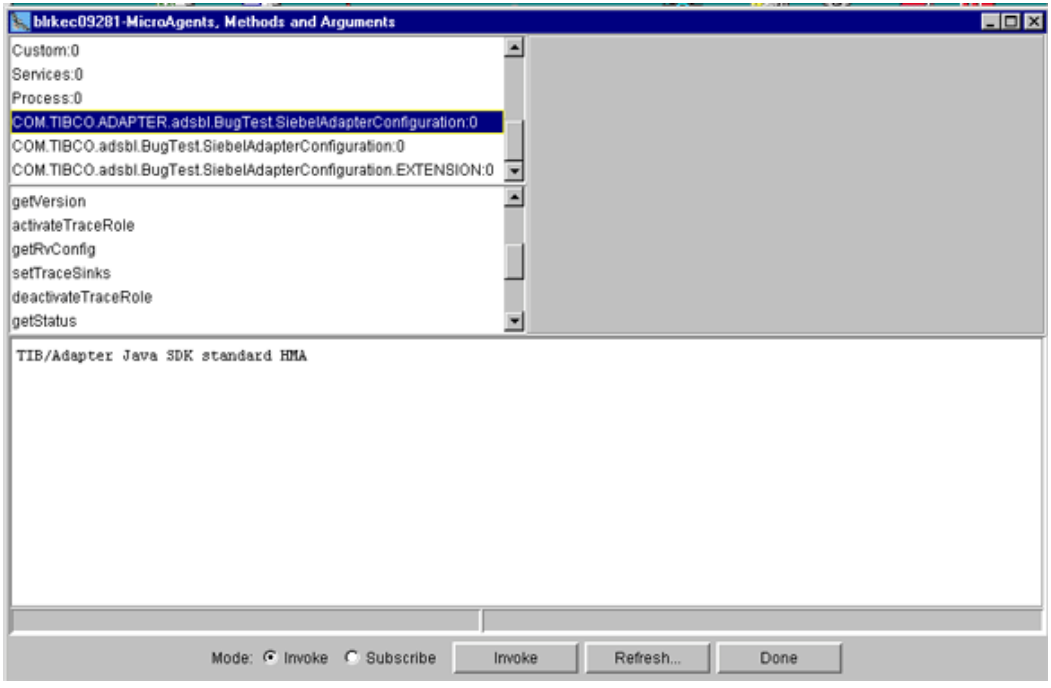
To invoke a microagent method:

1. Start TIBCO Hawk Display and then right-click the agent icon and select **Get Microagents**.

   If TIBCO Hawk security is implemented on your system and you do not have access to microagents on this agent, an error dialog displays. Select another agent, or contact your system administrator to obtain access. The Microagents, Methods and Arguments dialog displays. The panel on the upper left lists microagents you can access on the current agent.

   This dialog has two modes, `Invoke` and `Subscribe`. Invoking a method immediately returns a single set of current results. Subscribing provides updates of current results at regular intervals. Radio buttons at the bottom of the dialog control these modes.

2. Click a microagent name, such as **Self**, to display a list of associated methods and text descriptions in the panels below.



3. Click the name of the method to invoke, such as **getComponentInfo**.

   If the method accepts arguments, fields for each argument display in the upper right panel. Detailed help text displays in the lower panel.

4. Specify any arguments for the method invocation.
5. Verify that the `Invoke` radio button is selected.
6. Click the **Invoke** button to invoke the selected method. The `Invocation Results` dialog displays the results returned by the method.
7. Click **Done** to close the dialog.

These steps describe how to interactively invoke a microagent method and receive a single set of results in TIBCO Hawk Display. You can also use a microagent method as the data source of a TIBCO Hawk rule. Rules automatically receive method results, apply tests to evaluate them and then take action if necessary. For more information on building TIBCO Hawk rules and rule bases, see your *TIBCO Hawk Administrator's Guide*.

Available Microagents

Each adapter has three microagents, a standard TIBCO Hawk microagent named `COM.TIBCO.ADAPTER.`*xyz* where *xyz* is the adapter configuration name, a custom microagent and a class microagent. The microagents provide:

- Business level statistics—statistics that report the progress of the adapter as it interacts with the vendor application. For example, in a database adapter such statistics might indicate whether objects were successfully or unsuccessfully inserted, updated, or deleted in the database.
- Queries that return information about the state of the adapter. This can be an important tool for seeing the internals of an adapter and debugging it if something appears wrong. For example, methods can return information about threads, internal queues, or connections to the target system. Using these methods, one might be able to identify certain bottlenecks or gauge how successfully an adapter is scaling with respect to the current environment.
- Updates of the adapter runtime parameters. This includes retrieving the current runtime parameters and setting new runtime parameters without restarting the adapter. An example of this is getting and setting the polling interval. Updating a runtime parameter through the Hawk microagent only affects the setting of the instance that is running. It does not make a permanent change of the setting in either the repository or the .tra file.

By default all microagents, custom, standard and class microagents are available at runtime.

Custom microagents are deprecated in this release. All business statistics related methods, which were part of the custom microagent are now available in the class microagent.

`perfMon` property value set in the adapter's property file affects the business statistics related methods. If this property is set to on, the adapter does all the performance related calculations. When you invoke the methods, if the perfMon property is set to off, default values are displayed and not the valid values.

You can disallow adding custom methods to the class microagent when deploying the adapter by changing the `addCustomHawkMethodstoClassMAgent` property value in the adapter's property file. If this property is set to `on`, custom methods are added to the class microagents. If set to `off`, these methods are not visible.

The following table lists each method available for the adapter and page on which the method is explained.

Table 21 Microagent Methods

Method	Description	Page
activateTraceRole()	Activates a mapping of a role to a sink at runtime.	253
deactivateTraceRole()	Deactivates a mapping of a roles to sinks at runtime.	254
getActivityStatistics()	Returns the total number of objects processed for all the schemas.	255
getActivityStatisticsByOperation()	Returns the total number of objects processed for all the schemas by each service that is associated with a specified operation.	256
getActivityStatisticsByService()	Returns information about the services implemented by this adapter.	257
getAdapterServiceInformation()	Returns information about the services implemented by this adapter.	258
getComponents()	Returns information about the publisher, subscriber and IODescriptor.	259
getConfig()	Returns basic configuration information. More specific information is accessed by the more specific methods.	260
getConfigProperties()	Returns all attributes and elements for the given repository object.	261
getConnectionStatistics()	Returns the state and statistics for all the current connections used by the adapter.	262
getHostInformation()	Returns standard and extended application information.	263
getQueueStatistics()	Returns the current count of elements in any internal queue used by the adapter.	264

Table 21 Microagent Methods (Cont'd)

Method (Cont'd)	Description (Cont'd)	Page
getRvConfig()	Returns information about all TIBCO Rendezvous sessions defined.	265
getStatus()	Returns general status information, such as the number of TIBCO Rendezvous messages received and published, the number of errors since the last call, the PID of the application, and more.	266
getThreadStatistics()	Returns the operation counts of the current threads.	267
getTraceSinks()	Returns information about sinks to which traces currently go.	268
getVersion()	Returns the configuration ID, application name, version, and date for this adapter instance.	269
_onUnsolictedMsg()	Displays alert messages sent to the current adapter.	270
preRegisterListener()	Preregisters an anticipated listener.	271
resetActivityStatistics()	Resets all the counts for the activity statistics.	272
resetConnectionStatistics()	Resets all the counts for the connection statistics.	273
resetThreadStatistics()	Resets all the counts for the thread statistics.	274
reviewLedger()	Returns information retrieved from the ledger file of a certified messaging session for a publisher adapter.	275
setDebugLevel()	Sets the debug level for the current adapter instance.	277
setTraceSinks()	Adds a role or changes the file limit of a previously specified sink.	278

Table 21 Microagent Methods (Cont'd)

Method (Cont'd)	Description (Cont'd)	Page
stopApplicationInstance()	Stops the running adapter instance.	279
unRegisterListener()	Unregisters a currently preregistered listener.	280
getPerfMonSetting()	Returns the setting of the perfMon option. This is a custom microagent method.	281
getSiebelTraceInfo()	Provides information about tracing of SQL statements issued by the Siebel application. This is a custom microagent method.	282
setSiebelTraceOn()	Turns on the tracing of SQL statements issued by the Siebel application. This is a custom microagent method.	283
setSiebelTraceOff()	Turns off the tracing of SQL statements issued by the Siebel application. This is a custom microagent method.	284

activateTraceRole()

Activates a mapping of a role to a sink at runtime. This replaces the now-deprecated `setTraceSink()` TIBCO Hawk method.

Input Parameters	Type	Description
Role Name	string	Name of the role to activate.
Sink Name	string	Name of the sink for which to activate the role.

deactivateTraceRole()

Deactivates a mapping of a roles to sinks at runtime.

Input Parameters	Type	Description
Role Name	string	Name of the role to activate.
Sink Name	string	Name of the sink for which to activate the role.

getActivityStatistics()

Returns the total number of events processed for all the schemas, based on the request type. Also, returns the number of success and error events.

Input Parameter	Type	Description
GetSubTotalBy	string	Indicates how to group the subtotals, by `Service` or `Operation`.

Returns	Type	Description
Name	string	Service name or `All Services` which represents the final tally of all the services.
Total	integer	Total number of events processed including both success and failures.
Success	integer	Total number of events successfully processed.
Failure	integer	Total number of events that caused an error during processing.
MeasurementInterval	integer	Displays the time (in seconds) since last time the adapter was reset, or if never reset, since the adapter started.

getActivityStatisticsByOperation()

Returns statistics about one operation.

Input Parameter	Type	Description
Operation	string	Name of the operation.

Returns	Type	Description
Operation	string	Name of the operation.
Service Name	string	Name of the service.
Total	integer	Total number of events processed, both success and failures.
Success	integer	Total number of events successfully processed.
Failure	integer	Total number of events that caused an error during processing.
MeasurementInterval	integer	Displays the time (in seconds) since last time the adapter was reset, or if never reset, since the adapter started.
LineIndex	string	Concatenated string of `Service Name` and `Operation` separated by a comma.

getActivityStatisticsByService()

Returns statistics about the data handled by a given adapter service or all adapter services since the time the adapter was started.

Input parameter	Type	Description
Service Name	string	Name of service to get the statistics for. If no service name is given, performance statistics for all services is returned.

Returns	Type	Description
Service Name	string	Service name.
Schema Name	string	Name of top level schema processed by this service.
Operation	string	Type of operation this service provides.
Total	integer	Total number of events processed, both success and failures.
Success	integer	Total number of events successfully processed.
Failure	integer	Total number of events that caused an error during processing.
MeasurementInterval	integer	Displays the time (in seconds) since last time the adapter was reset, or if never reset, since the adapter started.
LineIndex	string	Concatenated string of `Service Name` and `Operation` separated by a comma.

getAdapterServiceInformation()

Returns information about the services implemented by this adapter.

Input Parameter	Type	Description
Service Name	string	Name of the service from which to get information. Default is `ALL`.

Returns	Type	Description
Line	integer	Sequential row number.
Service Name	string	Name of the service as defined at design-time.
Endpoint Name	string	Name of the endpoint used for this service.
Type	string	Type of the endpoint, for example, publisher or subscriber.
Quality of Service	string	Quality of service for the endpoint. For example RVCM or JMS Persistent.
Subject	string	Subject defined for this endpoint.
Class	string	Class associated with the endpoint.
Number of Messages	integer	Number of messages processed for this endpoint.

getComponents()

Returns information about the currently active TIBCO Hawk components such as publishers, subscribers, or timers.

Input Parameters	Type	Description
Component Name	string	Name of the component. If no value is enter, all components display.
Component Type	string	Any of `Publisher`, `Subscriber`, `Timer`, or `IODescriptor`. The default value is `All`.

Returns	Type	Description
Instance ID	string	Name of this adapter instance as defined at design-time.
Adapter Name	string	Name of the adapter.
Component Name	string	Name of the component.
Component Type	string	The name of the TIBCO Adapter SDK class for this component, such as `Publisher`, `Subscriber`, or `IODescriptorSource`. For more information about the class, see your TIBCO Adapter SDK documentation.
Session Name	string	Name of the session.
Description	string	Information about this component, for example, time interval, signal type, and validating the publisher or subscriber.

getConfig()

Retrieves generic configuration information. More specific configuration information is accessed through separate methods.

Returns	Type	Description
Instance ID	string	Configuration ID of this adapter.
Adapter Name	string	Name of the adapter.
Repository Connection	string	URL of the repository used for adapter instance.
Configuration URL	string	Location of the adapter project; either a file name or configuration URL.
Command	string	Command line arguments used to start the adapter.

getConfigProperties()

Returns all attributes and elements for the given repository object.

Input Parameter	Type	Description
Property	string	Name of the property for which elements (tags) and attributes are desired. For example, `agentone/startup`. If no value is given, all properties are returned.

Returns	Type	Description
Element Name	string	Repository directory for the property.
Attribute Name	string	Name of the repository object attribute.
Attribute Value	string	Value of the repository object attribute.
Line	integer	Line number in which this property is defined in the project file.

getConnectionStatistics()

Returns the state and statistics for all the current connections used by the adapter.

Returns	Type	Description
Connection ID	string	Unique identification of a particular connection.
Connection Type	string	Type or key that will match this connection to a thread or queue.
State	string	Is the state of the current connections. The values returned may be `CONNECTED`, `RETRYING`, or `UNKNOWN`. The value returned can be `UNKNOWN` if it is disconnected or if the `perfMon` property value in the adapter's property file (adsbl.tra) is set to `off`.
NumRetries	integer	Total number of times this connection had to be reestablished.
TotalNumOperations	integer	Total number of operations processed by this connection since the adapter started.
CurrentNumOperations	integer	Total number of operations processed by this connection since the last reconnection.
NumLostConnections	integer	Total amount of time that this connection has been lost.
MeasurementInterval	integer	Displays the time (in seconds) since last time the adapter was reset, or if never reset, since the adapter started.

getHostInformation()

Return standard and extended application information set. It returns the following information.

Returns	Type	Description
Name	string	Name of the property.
Value	string	Value of the property.

getQueueStatistics()

Return the current count of elements in any internal queue used by the adapter. This includes the TIBCO Rendezvous event queues automatically spawned by TIBCO Rendezvous for each adapter.

Returns	Type	Description
QueueID	string	Unique identification of a particular queue.
QueueType	string	Type or key that will match this queue to a thread or connection.
QueueCount	integer	Current number of elements in the queue.
MaxQueueSize	integer	Maximum number of elements in the queue.
MeasurementInterval	integer	Displays the time (in seconds) since last time the adapter was reset, or if never reset, since the adapter started.

getRvConfig()

Returns information about the TIBCO Rendezvous session defined by this adapter. Information about all currently defined sessions is returned if no `sessionName` is provided.

Input Parameter	Type	Description
Session Name	string	Name of the TIBCO Rendezvous session for which configuration is required. If not given, information about all sessions is returned. The default is all.

Returns	Type	Description
Instance ID	string	Configuration ID of this adapter.
Adapter Name	string	Name of the adapter.
Session Name	string	Name of the session.
Service	string	Service parameter for this session.
Daemon	string	Daemon parameter for this session.
Network	string	Network parameter for this session.
Synchronous?	boolean	Returns `1` if this is a synchronous session, `0` otherwise.
Session Type	string	Type of session; one of `M_RV`, `M_RVCM`, or `M_RVCMQ`.
Certified Name	string	Name of this certified session.
Ledger File	string	Ledger file for this certified messaging session. Returns the empty string for sessions that are not certified messaging sessions.
CM Timeout	string	Timeout for this certified messaging session. Returns the empty string for sessions that are not certified messaging sessions.

getStatus()

Retrieves basic status information about the adapter.

This information is fairly limited; for more detail, additional methods are provided (getConfig(), page 260 and getRvConfig(), page 265.).

Returns	Type	Description
Instance ID	string	Configuration ID for this adapter instance.
Adapter Name	string	Name of the adapter.
Uptime	integer	Number of seconds since startup.
Messages Received	integer	Number of TIBCO Rendezvous messages received.
Messages Sent	integer	Number of TIBCO Rendezvous messages published.
New Errors	integer	Number of errors since the last call to this method.
Total Errors	integer	Total number of errors since startup.
Process ID	integer	Process ID of the application.
Host	string	Name of host machine on which this adapter is running.

getThreadStatistics()

Return the operation counts of the current threads.

Returns	Type	Description
ThreadID	string	Unique identification of a particular thread.
ThreadType	string	Type that tells what part of the adapter this thread belongs. Valid types include "Publisher", "Subscriber", "RPC", or "Connection".
TaskType	string	One-word description of the tasks this thread processes.
TaskCount	integer	Number of tasks processed by this thread.
MeasurementInterval	integer	Displays the time (in seconds) since last time the adapter was reset, or if never reset, since the adapter started.

getTraceSinks()

Returns information about sinks to which traces currently go.

Input Parameters	Type	Description
Sink Name	string	Name of the sink for which you need information. If no name is specified, information about all sinks is returned. Default is `all`.
Role Name	string	Name of the role for which you need information for the specified sink or sinks. Default is `all`.

Returns	Type	Description
Instance ID	string	Name of this adapter instance as a string.
Adapter Name	string	Name of the application for this sink.
Sink Name	string	Name of the sink.
Sink Type	string	Type of this sink. One of fileSink, rvSink, hawkSink, stderrSink.
Roles	string	Roles this sink supports, as a string. For example warning, error, debug.

getVersion()

Retrieves version information for the current application. Two lines may be returned, one for the TIBCO Adapter SDK, one for the adapter.

Returns	Description
Instance ID	Configuration ID as a string, for example `SDK`.
Adapter Name	Name of the adapter as a string, for example `agentone`.
Version	Version number as a string, for example `5.3`.

_onUnsolictedMsg()

Displays all alert messages sent from the adapter or an error if not successful.

preRegisterListener()

Preregister an anticipated subscription service. Some sending applications can anticipate requests for certified delivery even before the listening applications start running. In such situations, the publication service can preregister subscription services, so TIBCO Rendezvous software begins storing outbound messages in the publication service ledger. If the listening correspondent requires old messages, it receives the backlogged messages when it requests certified deliver.

Input Parameters	Type	Description
Session Name	string	Name of the session that anticipates the listener.
Publisher Name	string	Name of the component for which the listener should be preregistered.
Listener Session Name	string	Name of the subscription service to preregister.

Returns OK if the subscription service was preregistered successfully, false otherwise.

resetActivityStatistics()

Resets all the counts for the activity statistics and when `getActivityStatistics()` is invoked, default values are displayed.

resetConnectionStatistics()

Resets all the counts for the connection statistics and when `getActivityStatistics()` is invoked, default values are displayed.

resetThreadStatistics()

Resets all the counts for the thread statistics and when `getActivityStatistics()` is invoked, default values are displayed.

reviewLedger()

Returns information retrieved from the ledger file of a TIBCO Rendezvous certified messaging session.

Before invoking this method, ensure that the certified messaging publisher adapter has established a certified delivery agreement with its subscriber agents.

Input Parameters	Type	Description
Session Name	string	Name of the TIBCO Rendezvous session for which ledger information is desired (default is all).
Subject	string	Name of the subject for which ledger information is desired.

Returns	Type	Description
Session Name	string	Name of the TIBCO Rendezvous CM session to which this information applies.
Subject	string	Subject name for this session.
Last Sent Message	integer	Sequence number of the most recently sent message with this subject name.
Total Messages	string	Total number of pending messages with this subject name.
Total Size	integer	Total storage (in bytes) occupied by all pending messages with this subject name. If the ledger contains ten messages with this subject name, then this field sums the storage space over all of them.
Listener Session Name	string	Within each listener submessage, the Listener Session Name field contains the name of the delivery-tracking listener session.

Returns (Cont'd)	Type	Description
Last Confirmed	string	Within each listener submessage, the Last Confirmed field contains the sequence number of the last message for which this listener session confirmed delivery.
Line	integer	Row number in ledger file.
Unacknowledged Messages	integer	Number of RVCM messages pending for this listener. The value is computed by subtracting the last sent sequence number from the last acknowledged sequence number.

setDebugLevel()

Sets the debug level for the current adapter instance.

Input Parameter	Type	Description
DebugLevel	integer	Sets the debug level to 0 (off), 1, 2, or 3. 0— No debug information displayed. 1—SQL commands executed against the database shown. 2—ODBC data source for each SQL command shown. 3—All debug information displayed.

Returns OK if successful or an error if not successful.

setTraceSinks()

Adds a role or changes the file limit of a previously specified sink.

Input Parameters	Type	Description
Sink Name	string	Name of the sink for which you want to add a role or change the file limit.
Role Name	string	Name of the role you want to add to this sink (warning, error, debug, or user defined). Default is all.
File Size	integer	Maximum file size for this sink. This parameter is ignored if the sink specified by sinkName is not a file sink.

Returns OK if successful or an error if not successful.

stopApplicationInstance()

Stops the specified adapter by calling the internal `stop()` method. This method returns OK if successful or an error if not successful.

unRegisterListener()

Unregister a currently preregistered subscription service.

Input Parameters	Type	Description
Session Name	string	Name of the session that anticipates the subscription service.
Publisher Name	string	Name of the publication service to which the subscription service is preregistered.
Listener Session Name	string	Name of the subscription service to unregister.

This method returns true if the subscription service was unregistered successfully, false otherwise.

getPerfMonSetting()

Return the setting of the perfMon option. It returns the following information.

Returns	Type	Description
Setting	string	Value of the perfMon option.

getSiebelTraceInfo()

Purpose

Provides all information about tracing of SQL statements issued by the Siebel application. This method is only available to the adapter when importing and exporting data from the Siebel system.

Parameters

None

Returns

This method returns the following values:

Name	Type	Description
Trace On	String	Specifies whether the Siebel tracing is currently on ('Y') or off ('N').
File Name	String	Output filename for the trace messages.
Trace Type	String	Specifies the type of tracing to start.

setSiebelTraceOn()

Purpose

Turns on the tracing of SQL statements issued by the Siebel applications for all connections in the connection pool.

Parameters

Name	Type	Description
File Name	String	Output filename for the trace messages.
Trace Type	String	Specifies the type of tracing to start.

Returns

None.

setSiebelTraceOff()

Purpose

Turns off the tracing of SQL statements issued by the Siebel applications for all connections in the connection pool.

Parameters

Name	Type	Description
File Name	String	Output filename for the trace messages.
Trace Type	String	Specifies the type of tracing to start.

Returns

None

Appendix A Frequently Asked Questions

This appendix lists answers to the frequently asked questions.

Topics

Frequently Asked Questions

Can I bring up TIBCO Designer from a UNIX command-line?

No. TIBCO Designer is a GUI based tool and a UNIX GUI environment is mandatory to run it. It cannot be brought up from a terminal.

Why does the connection fail?

Check the design -time connection parameters specified. Verify the values entered in the following parameters:

- `Host`
- `Enterprise Server`
- `Siebel Server`
- `Object Manager`
- `User Name`
- `Password`

While configuring adapter services for Integration Components, the following error occurs, "Failed to retrieve information from Siebel Repository. Operation exception occurred: An error has occurred creating Business Component <Business Component name> used by the Business Object <Business Object name>."

This error occurs when the global variable `SiebelVersion` is not set according to version of Siebel application installed. Please set this parameter to `6` if you are using Siebel 6.x and `7` for Siebel 7.x.

When starting the adapter, what if the repository is not found?

Start the TIBCO Repository server before starting the adapter. If you are starting a remote repository ensure that TIBCO Repository is installed on the remote location. Ensure that a properly configured `.dat` file is available in the path specified (local or remote). Ensure that the RepoUrl has been specified accurately in the adapter's `.tra` file.

Why does the adapter startup fail?

Either the repository file (`.dat`) is not placed in the *<install_path>*`\tibco\repository\remoterepos` directory, or the `.dat` file is not properly configured. Ensure that the RepoUrl syntax has been specified accurately in the adapter's `.tra` file. Ensure that the path specified for the `.tra` file is correct.

Why does the adapter startup fail, even after specifying the appropriate DAT file?

You must start the repository server before you start the adapter. If it is a remote repository ensure that the RepoUrl syntax has been specified accurately in the adapter's `.tra` file. Ensure that the path specified for the `.tra` file is correct.

When saving an adapter configuration to the project, if an error occurs where is it logged?

TIBCO Designer error messages are logged to the files `stderr.log` and `designer.log` under the *TIBCO_HOME*`\Designer\<`*ver*`>\logs` directory.

When an error occurs in a Subscription Service adapter service, where is it displayed?

Errors that occur in a Request-Response operation are sent to the client. Errors that occur in a subscription operation are logged to a trace file. The log file path and name is set in the `.tra` file corresponding to the adapter instance. All logs are sent to *TIBCO_HOME*`\adapter\adsbl\<version_num>\logs` unless otherwise specified.

Why does the adapter fail to respond to a request?

The subject name may be inconsistent. The subject name to which the adapter listens may be different from that of the subject name of the client. The request may be going to another component running in the same Distributed Queue (CMQ).

Why does the adapter fail to respond to a request after successfully receiving it?

The adapter may fail to respond due to various reasons like errors resulting from class mismatch, records not being available in the target application or, connectivity problems with the target application.

In the case of the Siebel adapter acting as a Request-Response Service, if the adapter fails to respond due to a problem, an Advisory document is sent as a reply. Open the Advisory document to see details of the error that occurred.

Where should I select the select the schemas for Mappers from, while configuring TIBCO MessageBroker, TIBCO IntegrationManager or TIBCO BusinessWorks transforms for different services of the adapter?

To publish to the adapter's Subscriber or to subscribe to the message published by the adapter, the schema to be selected for a mapper task is:
`AE Classes > siebel > <`*Adapter instance*`> > businessDocument > <`*Event Name*`>`

To send an Request-Response Service request to the adapter (TIBCO MessageBroker, TIBCO IntegrationManager or TIBCO BusinessWorks acting as a Request-Response Invocation Service and adapter acting as a Request-Response Service), select the schema from `AE Classes > siebel > <Adapter instance> > businessDocument > operation > <Event Name>` and in the `View Schema` tab, select the event (`process/Event/getEvent/setEvent`) and in the `Operation Schema` tab select **Use Request Schema**.

The request data should go in the `businessDoc` section of the schema.

To reply to a request received from the adapter (adapter acting as an Request-Response Invocation Service and TIBCO MessageBroker, TIBCO IntegrationManager or TIBCO BusinessWorks acting as a Request-Response Service), select the schema from `AE Classes > siebel > <Adapter instance> > businessDocument > operation > <Event Name>` and in the `View Schema` tab, select the event (`process/Event/getEvent/setEvent`) and in the `Operation Schema` tab select **Use Reply Schema**.

The reply data should go in the `Data` section of the `advisoryDoc` of the schema.

When does the adapter throw "The requested extension language function is not supported in this configuration. The current product configuration does not support the requested function." error.

The error could occur when

- The scripting language (VB or eScript) used to customize Siebel is different from the scripting language mentioned in the Siebel configuration (`.cfg`) file used to run the adapter. For example: say a Business Component is customized using VB Script (compiled the Siebel.`srf` with VB Script), but the configuration file (say `siebel.cfg`) used to run the adapter points to eScript, the adapter throws the error given above.
- If one or more objects or methods being referred in Scripting are not supported for the interfaces (Java Data Bean) used by adapter.
- When the Siebel repository (`.srf`) used by the adapter contains the scripts that accesses User Interface (UI) Layer, for example a `WriteRecord` script contains a call to `TheApplication().MsgBox()`. The adapter accesses the Business Objects Layer of Siebel and cannot access the User Interface Layer. User Interface (UI) references are invalid outside the context of a connected client and cannot be used at the Business Objects Layer.

Resolution

First check if the error occurs when the **ENABLESCRIPTING** parameter is set to `FALSE` in the .cfg file. If the error is not reproducible with **ENABLESCRIPTING** set to `FALSE`, it is a scripting issue. To resolve the issue in:

Siebel 6.2.x and higher Make sure that `Tools.cfg` and Siebel configuration (`siebel.cfg`) file refer to the same scripting dll (set the parameter `scriptingDLL` to `sscfjs.dll` if eScript is used and `sscfbas.dll` if VB script is used), recompile the `.srf` using Siebel Tools and re-start the adapter.

Siebel 7 Click **Tools > View > Options**. In the window that gets displayed, click the `Scripting` tab and select the appropriate **Scripting Language**, re-compile the `.srf` and restart the adapter.

If the issue is because of the User Interface methods referred in the scripts, a flag can be set in the event script and invoke User Interface methods only from the client and bypass the same when the scripts are invoked in the Business Objects Layer.

Please refer to Siebel documentation or support site for more information on the error.

Why do I get the following error message while starting the adapter: `Error in initializing the configured HTTP Port. Outbound scenarios will fail to work`?

Please check the HTTP port number configured in the `Run-time Connection` tab. The port number specified here is being used by some other application on the machine. Specify another port number.

Why do I get the following error message containing: `application error : NSReadKey request failed (no error information)....`?

The reasons that could lead to the error are listed below:

1. The name of the Object Manager you have entered is wrong. Note that in case of Siebel 7.5.x, the Siebel Object Manager name is appended with the language parameter. For example, for the Siebel Call Center, the Object Manager name is `SCCobjMgr_enu`.
2. The Object Manager is not running. Check the status with the `srvmgr` executable in the Siebel server installation.

Why do I get the following error message: `No fields found for Business Component....`while

fetching the Business Component fields using TIBCO Designer?

Increase the `timeout` value in the global variable `SiebelDesignTimeAdapterTimeOut` using TIBCO Designer.

While starting the adapter, why do I get the error message containing: `.....application error : Error loading translatable messages........`?

The possible reason is that the language parameter value specified in the `Run-time Connection` tab is incorrect. Enter the same value that you selected at the time of Siebel application installation.

Why do I get the error message containing: `Invalid business event...` while sending an outbound event from Siebel?

Check the Event Name specified in the `EAI TIBCO HTTP Agent` Business Service method parameters. This Event should be present in the adapter configuration.

The Apply button does not work after I enter the names of the Integration Object and Integration Component while creating a schema for a service?

Do not enter the names manually, use the **Fetch...** button to select the names of the Integration Object and Integration Component.

The global variable `SiebelLoginPassword` appears encrypted for a 4.x configuration due to which the 4.x has problems starting up. What should be done for this?

Change the type from `Password` to `String` for the global variable `SiebelLoginPassword` for any 4.x configuration in TIBCO Designer and the password will not appear encrypted.

Why does the Design-time and Run-time adapter display the error `Could not open a session in 4 attempts` while connecting to Siebel Server?.

The adapter is not able to connect to the gateway server. The machine on which the adapter is running is not able to resolve the hostname of the machine where Siebel gateway is installed. This error generally appears when a UNIX machine is in the scenario. An entry in the host table is required for correct address resolution. Check with your networking administrator.

Appendix B Trace Messages

This appendix explains the trace messages that are logged to a location specified at configuration time.

Topics

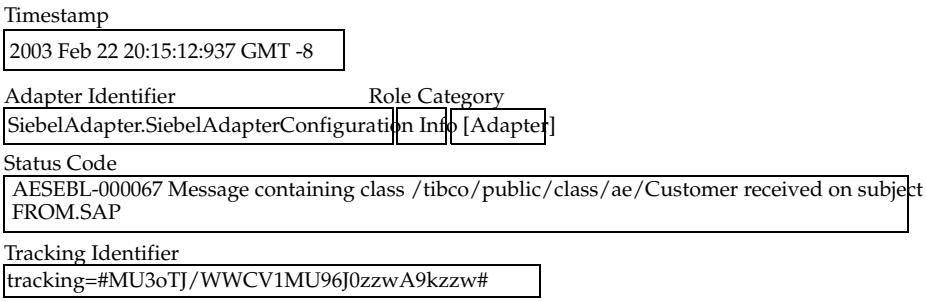
Overview

Trace messages provide information about adapter activities. The messages are logged to the console where the runtime adapter was started and to a log file. Trace messages can also be redirected to the TIBCO Hawk Display application, or sent to other applications using the TIBCO Rendezvous transport.

Each trace message can include the following fields:

```
<Timestamp> <Adapter Identifier> <Role> <Category> <Status Code>
<Tracking Identifier>
```

The above fields are explained in Trace Message Fields on page 294. The following diagram shows an example trace message and calls out the fields.



Example Trace Messages

The following trace messages were written during a session where TIBCO Adapter for Siebel received an object from TIBCO Adapter for R/3 and then processed the object.

The first message indicates that TIBCO Adapter for Siebel has started. The timestamp indicates when the adapter started, and the role indicates that the trace message is informational, which means the activity is normal for the adapter. The category is identified, and the corresponding status code is displayed. The status code indicates that the adapter started successfully.

```
2003 Apr 07 16:10:38:446 GMT +5
SiebelAdapterConfiguration Info [Configuration]
AESEBL-990038 "Application Ready".
```

The next set of trace messages indicates the adapter received an object that was sent on the TIBCO Rendezvous subject, `FROM.SAP`. The `#MU3oTJ/WWCV1MU96J0zzwA9kzzw#` tracking identifier included in the trace message uniquely identifies the message. The adapter (TIBCO Adapter for R/3) from which the message originated provided the identifier.

```
2003 Apr 07 16:14:53:943 GMT +5
SiebelAdapterConfiguration Info [Adapter]
AESEBL-990034 Incoming event is BusCompPubEvent with Key Name/A*
and Operation type 4.
tracking=#iGQSCYoeNvds1kkG67zzw6R-zzw#

2003 Apr 07 16:14:57:959 GMT +5
SiebelAdapterConfiguration Info [Adapter]
AESEBL-990036 Event BusCompPubEvent completed with result 0. Time
elapsed: 3996 ms.
tracking=#iGQSCYoeNvds1kkG67zzw6R-zzw#
```

The final trace message states that the event has been completed with result `0`.

Trace Message Fields

Each trace message includes the following fields:

Table 22 Tracing Fields

Field Name	Description
Timestamp	Timestamp of occurrence. For example, `2003 Feb 22 20:14:51:718 GMT -8`.
Adapter Identifier	This is the name of the adapter instance. For example, `SiebelAdapterConfiguration`.
Role	A role can be: • Info. Indicates normal adapter operation. No action is necessary. A tracing message tagged with Info indicates that a significant processing step was reached and has been logged for tracking or auditing purposes. Only info messages preceding a tracking identifier are considered significant steps. • Warn. An abnormal condition was found. Processing will continue, but special attention from an administrator is recommended. • Error. An unrecoverable error occurred. Depending on the error severity, the adapter may continue with the next operation or may stop altogether. • Debug. A developer-defined tracing message. In normal operating conditions, debug messages should not display. When configuring the adapter you define what roles should or should not be logged. For example, you may decide not to log Info roles to increase performance.

Table 22 Tracing Fields

Field Name	Description
Category	One of the following: • Adapter. The adapter is processing an event. • Application. The adapter is interacting with the Siebel system. • Configuration. The adapter is reading configuration information. • Database. The adapter is interacting with a database. • Metadata. The adapter is retrieving metadata from the Siebel system. • Palette. The adapter is interacting with the palette. • Publisher Service. The Publication Service is reporting this trace message. • Request-Response Client Service. The Request-Response Invocation Service is reporting this trace message. • Request-Response Server. The Request-Response Service is reporting this trace message. • Shutdown. The adapter is shutting down. • Startup. The adapter is starting. • Subscription Service. The Subscription Service is reporting this trace message. • System. This category is not linked to a specific event process. The trace message may be related to a Microsoft Windows service related messages, memory allocation, file system error, and so on. • TibRvComm. The adapter is communicating with TIBCO Rendezvous. • XML. The adapter is parsing XML documents.
Status Code	Unique code for the message and description. Status codes are identified by a unique number and description. If a trace message includes an error or warn role, the status code documentation includes a resolution. See , Status Messages, page 297 for details.

Table 22 Tracing Fields

Field Name	Description
Tracking Identifier	A unique identifier that is "stamped" on each message by the originating adapter. The tracking identifier remains in effect from a message's beginning to its completion as it is exchanged by TIBCO applications. If the adapter is the termination point of the message, the tracking identifier is not displayed in the trace message. You cannot modify the tracking identifier format or configure what information is displayed.
Application Information	Application-specific information added to the tracking information to trace the message back to its source. Set initially by the originating adapter and carried forward. It is augmented by each intermediate component.

Status Messages

Resolutions are provided wherever possible for error and warning messages. If there is no resolution provided, or if you need additional help, contact TIBCO Support at http://support.tibco.com.

Table 23 Error Messages

Message	Role	Category	Resolution
AEADSBL-400001	**Adapter Rename Warning/The schema folder for this adapter configuration will be changed from [%1] to [%2] as a result of this rename. Are you sure you want to proceed?**		
	Warning	Configuration	This is a general warning to warn the user against the changes which will happen due to rename of the adapter instance.
AEADSBL-400002	**Connection Retry Mechanism Warning/This adapter version does not suspend services on connection failure. The configured values for maximum number of Reconnect Attempts, Number of Reconnect Attempts Before Suspending Impacted Service(s) & Interval between Reconnect Attempts (milliseconds) will be ignored.**		
	Warning	Configuration	This is to warn the user about the connection retry mechanism in 4x adapter.
AEADSBL-400003	**JMS Service Configuration Warning/This adapter version does not support JMS services but one was found.'**		
	Warning	Configuration	This is warn the user about existence of a JMS Service in 4x adapter configuration.
AEADSBL-400004	**XML Wire Format Warning/This adapter version does not support XML Wire Format.**		
	Warning	Configuration	This is warn the user about existence of a xml wire format in 4x adapter configuration.

Message	Role	Category	Resolution
AEADSBL-400005	**Connection Successful/Siebel connection successfully established as user [%1].**		
	Information	Design-time Connection	Indicates normal adapter operation. No action required.
AEADSBL-400006	**Connection Released/Siebel connection successfully released.**		
	Information	Design-time Connection	Indicates normal adapter operation. No action required.
AEADSBL-400007	**Connection Error/Siebel connection could not be established. Please check the connection parameters.**		
	Error	Design-time Connection	Please check the connection parameters and try connecting again.
AEADSBL-400008	**Password Error/Password for Siebel Design-time Connection not specified. Please enter a valid User Name at the main Design-time Connection form view.**		
	Error	Design-time Connection	Please enter a valid User Name at the main Design-time Connection form view.
AEADSBL-400009	**UserName Error/Please enter a valid User Name at the main Design-time Connection form view.**		
	Error	Configuration	Please enter a valid User Name at the main Design-time Connection form view.
AEADSBL-400011	**Adapter Configuration/Adapter Configuration names must have only alphanumeric characters with no embedded spaces and can be up to 80 characters long. Please type in a valid name.**		
	Error	Configuration	Please correct the adapter configuration name.
AEADSBL-400012	**Adapter Configuration/Configuration name cannot be the same as the project name. Please enter a different name.**		
	Error	Configuration	Please specify a unique name.

Message	Role	Category	Resolution
AEADSBL-400014	**Delete Warning/Associated endpoints, sessions, wire and native schemas, associated global variables, file records will also be deleted. Are you sure you want to proceed?**		
	Warning	Configuration	This is to warn the user before the adapter instance is deleted.
AEADSBL-400015	**Endpoint reference [%1] for operation [%2] not found.**		
	Warning	Configuration	Please check the endpoint reference in the `Advanced` tab of the service.
AEADSBL-400016	**Error/Operation [%1] (Event: [%2]) not found.**		
	Warning	Configuration	This warning appears when an event for an operation does not exist in the repository.
AEADSBL-400017	**Error/Event names are different.<activate.**		
	Warning	Configuration	This warning appears when an event for an operation does not exist in the repository.
AEADSBL-400018	**Error/Base Classes for Siebel could not be loaded.**		
	Error	Configuration	Check if the palette jar is proper.
AEADSBL-400019	**Generate Schema/Do you wish to generate the Integration Object schema also.**		
	Warning	Configuration	This is to warn the user about generation of integration schema.
AEADSBL-400020	**Subject Error/Message subject is not a valid RV subject. The following characters: may not appear in the subject. The subject cannot contain NULL elements (e.g. Siebel.Send') or begin with'.','_'.'.**		
	Error	Configuration	Please specify a valid subject.
AEADSBL-400021	**Schema Regeneration/Business Event Message Schema will be regenerated.**		
	Information	Configuration	Indicates normal adapter operation. No action required.

Message	Role	Category	Resolution
AEADSBL-400022	**Operation Type/Operation type Delete does not support Subscription services with child object(s). Delete is only allowed for Subscription services with primary business component that does not have any child object(s).**		
	Error	Configuration	Please do not delete operation with the subscription service with primary Business Component that has any child object(s).
AEADSBL-400023	**Missing Match Condition/Match condition not specified for [%1] Please specify at least one match condition.**		
	Error	Configuration	Please specify the match conditions.
AEADSBL-400024	**Destination Error/Destination is not valid JMS subject. The following characters: may not appear in the subject. The subject cannot contain NULL elements (e.g. Siebel.Send')or begin with'.','_'.'.**		
	Error	Configuration	Please specify a valid destination.
AEADSBL-400025	**Invalid Event Class/Invalid Event Class Selection for Request Schema Reference.**		
	Warning	Configuration	This is to warn the user against improper selection of event class for request schema reference.
AEADSBL-400026	**Invalid Event Class/Invalid Event Class Selection for Reply Schema Reference.**		
	Warning	Configuration	This is to warn the user against improper selection of event class for reply schema reference.
AEADSBL-400028	**Connection Error/Siebel Design-time Connection is not established yet. Please establish the connection using the Design-time Connection tab.**		
	Error	Configuration	Please check the Design-time Connection parameters.

Message	Role	Category	Resolution
AEADSBL-400029	**Error/Multi Value Fields from parent Business Component not retrieved. Please reload list of Siebel Fields from Siebel Repository before proceeding.**		
	Error	Configuration	Please reload list of Siebel Fields from Siebel Repository before proceeding.
AEADSBL-400030	**Select Repository/Select a Siebel Repository.**		
	Information	Configuration	Indicates normal adapter operation. No action required.
AEADSBL-400032	**Password Error/Password not set for User [%1]. Please check the Connection settings of the Adapter Configuration.**		
	Error	Configuration	Please specify the password and then try connecting using Design-time Connection.
AEADSBL-400035	**Connection Failure/Connection to Siebel Repository failed.**		
	Error	Design-time Connection	Please check the console for possible errors.
AEADSBL-400036	**Combination does not Exist/ The combination of Business Component and Business Object does not exist.**		
	Error	Design-time Connection	Please check the Business Object and Business Component combination.
AEADSBL-400037	**Regenerate Field List/Do you want to regenerate Siebel field list for [%1]?**		
	Information	Design-time Connection	Indicates normal adapter operation. No action required.
AEADSBL-400038	**Fields could not be fetched./Please fetch the Integration Object and Component.**		
	Error	Design-time Connection	Please fetch the integration object and component before fetching the fields.
AEADSBL-400039	**No Field Found/No fields found for Siebel Integration component [%1].**		
	Error	Design-time Connection	Please check if the fields exist in Siebel.

Message	Role	Category	Resolution
AEADSBL-400040	**No Field Found/No fields found for [%1].**		
	Error	Design-time Connection	Please check if the fields exist in Siebel.
AEADSBL-400041	**Business Component already chosen/The Business Component is already chosen.**		
	Error	Design-time Connection	Please select another Business Component.
AEADSBL-400042	**Invalid Integration Object Name/Enter a valid Integration Object Name**		
	Error	Configuration	Please enter a valid Integration Object Name.
AEADSBL-400043	**EndPoint Reference Error/EndPoint Reference cannot be blank.**		
	Error	Configuration	Please specify a valid endpoint reference.
AEADSBL-400044	**EndPoint Name Error/EndPoint Name is not valid.**		
	Error	Configuration	Please specify a valid endpoint name.
AEADSBL-400045	**Service Name Error/Service name can only contain alphanumeric characters with no embedded spaces and cannot exceed maximum length of 80 characters.**		
	Error	Configuration	Please specify a valid service name.
AEADSBL-400046	**Business Event Name Error/Business Event name can only contain alphanumeric characters with no embedded spaces and cannot exceed maximum length of 80 characters.**		
	Error	Configuration	Please specify a valid event name.
AEADSBL-400047	**Business Event Name Error/Business Event name already exists in Configuration.**		
	Error	Configuration	Please specify a unique event name.
AEADSBL-400048	**Invalid TimeOut/Invalid TimeOut value. The value cannot be negative or zero.**		
	Error	Configuration	Please specify a valid timeout value.

Message	Role	Category	Resolution
AEADSBL-400049	**Mandatory Field Error/No value specified for mandatory field [%1].**		
	Error	Configuration	Please specify a value for the mandatory field.
AEADSBL-400050	**Value Range Error/Palette error. The [%1] must be greater than or equal to [%2], and less than or equal to [%3].**		
	Error	Configuration	Please ensure that the numeric value lies in the range specified.
AEADSBL-400051	**Invalid Value/Invalid value entered for [%1].**		
	Error	Configuration	Please specify a valid value for the field.
AEADSBL-400052	**Duplicate Instance Name/Another instance with same name [%1] exists in the project. Please specify a unique instance name.**		
	Error	Configuration	Please specify a unique adapter instance name.
AEADSBL-400053	**Duplicate Service Name/Another service with same name [%1] exists in the project. Please specify a unique service name.**		
	Error	Configuration	Please specify a unique service name.
AEADSBL-400054	**Invalid Subject/Invalid subject specified for [%1] of service [%2].**		
	Error	Configuration	Please specify a valid subject.
AEADSBL-400055	**Illegal First Character/Illegal first character, The name of [%1] must start with an alphabet.**		
	Error	Configuration	Please enter a valid first character.
AEADSBL-400056	**File Not Found/Unable to find the specified file specified in [%1]. Please ensure that you specified an absolute path and the file exists.**		
	Error	Configuration	Please ensure that you specified an absolute path and the file exists.
AEADSBL-400057	**Instance Name Length Error/Instance name length exceeded. Adapter Configuration names can only have alphanumeric characters and can be up to 80 characters long.**		
	Error	Configuration	Please enter a valid instance name.

Message	Role	Category	Resolution
AEADSBL-400058	**Incomplete Selection/Incomplete selection. You must select at least one [%1].**		
	Error	Configuration	Please select at least one value.
AEADSBL-400059	**Duplicate EndPoint Reference/ Duplicate Endpoint [%1] is already referenced by another service. Please select a different endpoint.**		
	Error	Configuration	Please select another endpoint which is not being referred by another service.
AEADSBL-400060	**Invalid Selection/Invalid selection for [%1]. The selected endpoint must contain alphanumeric characters only. Please select an endpoint with a valid name.**		
	Error	Configuration	Please select an endpoint with a valid name.
AEADSBL-400061	**Invalid Session Name/Invalid session name specified for [%1]. Please make sure the session name contains only alphanumeric characters only.**		
	Error	Configuration	Please provide a valid session name.
AEADSBL-400062	**Server Type Error/Specified server type [%1] does not match the actual server type [%2]. Please enter the correct server type.**		
	Error	Configuration	Please enter a valid server type.
AEADSBL-400071	**Cannot Rename/The adapter configuration could not be renamed. Please ensure that the aeschema file is writable.**		
	Error	Configuration	Please checkout the AESchema file and then try renaming the adapter instance.
AEADSBL-400072	**Resource Locked/The operation on Resource [%1] could not be completed. The operation requires that [%2] must be checked out. Ensure that the file is checked out. You can select the resource to be checked out by clicking the "Go To Resource" button.**		
	Error	Configuration	Please checkout the schemas and then try again.

Message	Role	Category	Resolution
AEADSBL-400073	**Error During Delete: Read-Only File/The resource [%1] could not be deleted. Delete requires that [%2] must be checked out. Please checkout the resource and try deleting again. You can select the resource to be checked out by clicking the "Go To Resource" button.**		
	Error	Configuration	Please checkout the schemas and try deleting again.
AEADSBL-400074	**Error During Paste : Read-Only File/The resource [%1] could not be pasted. Paste requires that [%2] must be checked out. Please checkout the resource and try copy/paste again. You can select the resource to be checked out by clicking the "Go To Resource" button.**		
	Error	Configuration	Checkout the schemas and try copy/paste again.
AEADSBL-400075	**Error During Move: Read-Only File/The resource [%1] could not be moved. Move requires that [%2] must be checked out. Please checkout the resource and try moving again.You can select the resource to be checked out by clicking the "Go To Resource" button.**		
	Error	Configuration	Checkout the schemas and try move again.
AEADSBL-400076	**Error During Rename: Read-Only File/The resource [%1] could not be renamed. Rename requires that [%2] must be checked out. Please checkout the resource and try renaming again.You can select the resource to be checked out by clicking the "Go To Resource" button.**		
	Error	Configuration	Checkout the schemas and try rename again.
AEADSBL-400077	**Warning: Add File to RCS/[%1] was created during schema generation. Please ensure that this resource is added to RCS and checked in. You can select the resource to be checked out by clicking the "Go To Resource" button.**		
	Warning	Configuration	This is to inform the user that new files have been added under schemas which need to be added to RCS.
AESEBL-990006	**%1**		
	Information	Configuration	Indicates normal adapter operation. No action required.

Message	Role	Category	Resolution
AESEBL-990014	**Event exit implementation: %1**		
	Information	Configuration	Indicates normal adapter operation. No action required.
AESEBL-990015	**Invoking %1 operation for event %2.**		
	Information	Adapter	Indicates normal adapter operation. No action required.
AESEBL-990016	**Adapter with process ID %1 will be stopped now (subject:%2).**		
	Information	System	Indicates normal adapter operation. No action required.
AESEBL-990017	**Adapter(s) will be stopped now (subject:%1).**		
	Information	System	Indicates normal adapter operation. No action required.
AESEBL-990018	**Event %1 dispatched for processing.**		
	Information	Adapter	Indicates normal adapter operation. No action required.
AESEBL-990029	**Total number of events processed successfully: %1**		
	Information	System	Indicates normal adapter operation. No action required.
AESEBL-990030	**Total number of event processed with errors: %1**		
	Information	System	Indicates normal adapter operation. No action required.
AESEBL-990031	**Maximum number of failed events set to: %1.**		
	Information	Configuration	Indicates normal adapter operation. No action required.
AESEBL-990034	**Incoming event is %1 with Key %2 and Operation type %3.**		
	Information	Adapter	Indicates normal adapter operation. No action required.

Message	Role	Category	Resolution
AESEBL-990035	**Incoming event is %1 with Operation type %2.**		
	Information	Adapter	Indicates normal adapter operation. No action required.
AESEBL-990036	**Event %1 completed with result %2. Time elapsed: %3 ms.**		
	Information	Adapter	Indicates normal adapter operation. No action required.
AESEBL-990037	**Event %1 completed with result %2. Time elapsed: %3 ms.**		
	Error	Adapter	Refer to the resolution for the last error traced.
AESEBL-990038	**Application Ready.**		
	Information	Configuration	Indicates normal adapter operation. No action required.
AESEBL-990039	**Received request to shutdown adapter on subject %1.**		
	Information	System	Indicates normal adapter operation. No action required.
AESEBL-990059	**Event %1 completed with result 0.**		
	Information	Adapter	Indicates normal adapter operation. No action required.
AESEBL-990062	**Setting default time out interval to %1 seconds.**		
	Information	Configuration	Indicates normal adapter operation. No action required.
AESEBL-990064	**Sequence[%1] Property %2: %3.**		
	Warning	Adapter	Indicates normal adapter operation. No action required.
AESEBL-990065	**Field %1 is %2.**		
	Warning	Adapter	Indicates normal adapter operation. No action required.

Message	Role	Category	Resolution
AESEBL-990066	**Field %1 type is %2.**		
	Information	Adapter	Indicates normal adapter operation. No action required.
AESEBL-990068	**%1.**		
	Error	Adapter	An internal adapter error has occurred. Report the problem to TIBCO Support.
AESEBL-990069	**Unknown error in RV advisory handler.**		
	Error	System	An internal adapter error has occurred. Report the problem to TIBCO Support.
AESEBL-990070	**Unable to get component %1.**		
	Error	Configuration	Please add the component to your adapter configuration.
AESEBL-990071	**Shutting down adapter. Received Advisory: %1.**		
	Error	System	
AESEBL-990072	**Siebel configuration tag %1 not specified. Expected for %2.**		
	Error	Configuration	Please add the missing attribute to your adapter configuration.
AESEBL-990073	**File sink %1 does not exist.**		
	Error	Configuration	Please check your adapter configuration and ensure that the file sink is specified.
AESEBL-990074	**Publisher %1 not found. Unable to pre register publisher %2 with CM subscriber name %3.**		
	Warning	Configuration	Please check your adapter configuration.
AESEBL-990075	**Siebel Business Event tag %1 not defined for event %2. No message published for this event.**		
	Error	Configuration	Please associate the event with the appropriate publisher endpoint. Check your adapter configuration.

Message	Role	Category	Resolution
AESEBL-990076	**Publisher %1 not available. No message published for this event.**		
	Error	Configuration	Please associate the event with the appropriate publisher endpoint. Check your adapter configuration.
AESEBL-990077	**Subscriber %1 not available. No messages will be received for this subscriber.**		
	Error	Configuration	Please add the subscriber endpoint to your adapter configuration.
AESEBL-990078	**Out of memory**		
	Error	System	Your system is running out of memory. Please close some applications.
AESEBL-990079	**Unknown error in the adapter.**		
	Error	Configuration	An internal adapter error has occurred. Report the problem to TIBCO Support.
AESEBL-990080	**Unknown error in initialization.**		
	Error	Configuration	An internal adapter error has occurred. Report the problem to TIBCO Support.
AESEBL-990081	**Error in initializing the configured HTTP Port. Outbound scenarios will fail to work.**		
	Error	Adapter	Configured HTTP port may be already in use. Use a different port.
AESEBL-990082	**Two instances of the adapter have been started with the same CM session name.**		
	Error	Configuration	Please verify the CM session names in the appropriate adapter configuration(s) and ensure that the CM name is unique.
AESEBL-990083	**Error in initializing the configured HTTP Port. Outbound scenarios will fail to work.**		
	Error	Adapter	Configured HTTP port may be already in use. Use a different port.

Message	Role	Category	Resolution
AESEBL-990089	**Invalid operation code %1.**		
	Error	Adapter	Please provide a valid operation code.
AESEBL-990090	**There are no timers available in the adapter configuration.**		
	Warning	Configuration	Please check the adapter configuration and add a timer and then restart the adapter.
AESEBL-990091	**Unknown error occurred during event execution.**		
	Error	Adapter	An internal adapter error has occurred. Report the problem to TIBCO Support.
AESEBL-990092	**Thread Interruption Error during event execution.**		
	Error	Adapter	An internal adapter error has occurred. Report the problem to TIBCO Support.
AESEBL-990094	**Events table generation failed.**		
	Error	Adapter	An internal adapter error has occurred. Report the problem to TIBCO Support.
AESEBL-990095	**Hawk micro agent %1 is unavailable.**		
	Error	Configuration	Please add the Hawk micro agent to your adapter configuration.
AESEBL-990096	**Reply advisory document data type is unsupported.**		
	Error	Adapter	Please verify that the AE Operation server returns a supported data type.
AESEBL-990097	**Reply advisory document data is non-schema type.**		
	Error	Adapter	Please verify that the AE Operation server returns a supported schema-based data type.
AESEBL-990098	**Reply advisory document does not contain any data.**		
	Error	Adapter	Please verify that the AE Operation server returns data.

Message	Role	Category	Resolution
AESEBL-990099	**Reply advisory document not set.**		
	Error	Adapter	Please verify that the AE Operation server returns an advisory document.
AESEBL-990100	**Record already exists for %1.**		
	Warning	Adapter	Please verify the operation code.
AESEBL-990101	**Incoming data for %1: %2.**		
	Error	Adapter	Often reported after some error, Please check the previous error.
AESEBL-990102	**Unsupported object type %1.**		
	Error	Adapter	An internal adapter error has occurred. Report the problem to TIBCO Support.
AESEBL-990103	**Search criteria for %1 not added for this rule.**		
	Warning	Adapter	
AESEBL-990104	**Siebel Field %1 not set.**		
	Warning	Adapter	Verify the request data and field properties using Siebel Tools.
AESEBL-990105	**Siebel record not found for %1.**		
	Warning	Adapter	Please verify the search criteria specified.
AESEBL-990106	**New child record is not allowed for %1.**		
	Error	Adapter	Please check properties for this component using Siebel Tools.
AESEBL-990107	**Unable to create association for %1.**		
	Warning	Adapter	Please check properties for this component using Siebel Tools.
AESEBL-990108	**Failed to handle sequence[%1].**		
	Error	Adapter	Please Contact Tibco Support.

Message	Role	Category	Resolution
AESEBL-990109	**Unable to set Siebel shared global variable %1: %2. %3.**		
	Error	Application	Verify that the EAI Tibco HTTP Agent has been imported to Siebel and server srf has been compiled and regenerated.
AESEBL-990110	**Login to Siebel failed: %1.**		
	Error	Application	Please check the login parameters provided in the properties (.tra) file.
AESEBL-990115	**Cannot load the Siebel Repository: %1.**		
	Error	Application	Please verify whether Siebel is installed properly. User name or password may be invalid. Please check the adapter configuration and verify the Siebel connection parameters.
AESEBL-990116	**No records found for %1.**		
	Error	Adapter	Please verify the match conditions in the adapter configuration.
AESEBL-990117	**Siebel Business Event tree nesting hierarchy too deep. Not supported.**		
	Error	Configuration	Please check the Business Event configuration. Reduce the size of the hierarchy of the event configuration.
AESEBL-990118	**Multiple activations sections detected in the configuration.**		
	Error	Configuration	Please check your adapter configuration. There must be only one activations section in the adapter configuration.
AESEBL-990119	**Multiple events sections detected in the configuration.**		
	Error	Configuration	Please check your adapter configuration. There must be only one events section in the adapter configuration.
AESEBL-990120	**Internal error: %1.**		
	Error	Adapter	An internal adapter error has occurred. Report the problem to TIBCO Support.

Message	Role	Category	Resolution
AESEBL-990121	**Invalid business document.**		
	Error	Adapter	An internal adapter error has occurred. Report the problem to TIBCO Support.
AESEBL-990122	**The event %1 is not specified in the configuration.**		
	Error	Adapter	Please check your adapter configuration and ensure the event is specified in the configuration.
AESEBL-990123	**The activation (like match condition) for %1 is not specified in the configuration.**		
	Error	Configuration	Please check your adapter configuration and then add the activation. Verify that Match condition is specified.
AESEBL-990124	**Cannot create Business Component %1.**		
	Error	Adapter	Check the Business Component properties in Siebel using Siebel Tools.
AESEBL-990125	**Cannot pre-activate Business Component %1 for Business Component %2.**		
	Error	Adapter	Please check your adapter configuration.
AESEBL-990126	**Cannot create link %1, %2.**		
	Error	Adapter	An internal adapter error has occurred. Report the problem to TIBCO Support.
AESEBL-990127	**Type attribute in activation invalid or missing - %1.**		
	Error	Adapter	Please check the activations in your adapter configuration.
AESEBL-990128	**Error in event specification. %1.**		
	Error	Configuration	Please check the events and activations specifications in your adapter configuration.
AESEBL-990129	**Message does not have data for %1.**		
	Error	Adapter	Please verify that the message has valid data.

Message	Role	Category	Resolution
AESEBL-990130	**Cannot set attribute %1.%2. Error: %3.**		
	Error	Adapter	Please check the properties for the attribute from Siebel using Siebel Tools.
AESEBL-990131	**Cannot set sequence %1.**		
	Error	Adapter	Please contact Tibco Support.
AESEBL-990132	**Field %1 not found in the message for %2.**		
	Warning	Adapter	Please verify that the message has valid data.
AESEBL-990133	**Key field %1 not found in the message for %2.**		
	Warning	Adapter	Please check that all the key fields have been given valid values in the message.
AESEBL-990134	**Invalid configuration specification. Sequence must have property matches only.**		
	Error	Configuration	Please check your adapter configuration.
AESEBL-990135	**%1 instance not found.**		
	Error	Adapter	Verify activations specification in the configuration for %1.
AESEBL-990136	**Multiple records found for %1.**		
	Error	Adapter	Please check the match filter criteria in the configuration. Ensure the value(s) for match criteria contained in the message returns a unique record.
AESEBL-990137	**Multiple MVL records found for %1.**		
	Error	Adapter	Please check the key fields definition for the multi value link. Ensure the value(s) for key fields contained in the message matches a unique record.

Message	Role	Category	Resolution
AESEBL-990138	**Filter criteria for %1 is empty or contains wild card(s). Attribute %2 with value %3 is empty or contains wild card(s).**		
	Error	Adapter	Please ensure that the value is not empty or contains no wild card(s).
AESEBL-990139	**Insert is not allowed for %1 event. %2 property for event %3 is set to true.**		
	Error	Adapter	Please check your adapter configuration and Ensure the event does not have NOINSERT as TRUE.
AESEBL-990140	**Update is not allowed for %1 event. %2 property for event %3 is set to true.**		
	Error	Adapter	Please check your adapter configuration and ensure the event does not have NOUPDATE as TRUE.
AESEBL-990141	**Delete is not allowed for %1 event. %2 property for event %3 is set to true.**		
	Error	Adapter	Please check your adapter configuration and ensure the event does not have NODELETE as TRUE.
AESEBL-990142	**Insert or Update is not allowed for %1 event. %2 and/or noUpdate'propertyforevent%3issettotrue.'**		
	Error	Adapter	Please check your adapter configuration and ensure the event does not have NOINSERTORUPDATE as TRUE.
AESEBL-990143	**Possible conflicting configuration detected for %1. Retrieval of child object may have reset the %2 objects recordset. The parent child relationship defined in the configuration could be in reverse to the relationship semantics as defined in Siebel.'**		
	Error	Adapter	Please check the adapter configuration for child object(s) and ensure they do not use the same Business Object OR establish the same parent-child relationship semantics in the configuration as defined in Siebel.

Message	Role	Category	Resolution
AESEBL-990144	**Failed to retrieve value for match property field %1. Source field %2 for %3 not found in the incoming message.**		
	Error	Adapter	Please check the incoming message.
AESEBL-990145	**Multiple records found for PickList field %1 for %2.**		
	Error	Adapter	Values from incoming message did not result in unique PickList record for PickList field. ensure the value(s) for match criteria contained in the message returns a unique record.
AESEBL-990146	**No records found for PickList field %1.**		
	Warning	Adapter	Please check the values of the pick map fields in the incoming message and ensure it returns a unique record.
AESEBL-990147	**PickList field %1.%2 not updated (%3).**		
	Error	Adapter	Please check the Siebel properties for this pick list using Siebel Tools.
AESEBL-990148	**Siebel %1 error, for %2 (%3).**		
	Error	Application	Please ask your systems administrator to check your application configuration if the problem persists.
AESEBL-990149	**Incoming request does not contain business object and/or Business Component name.**		
	Error	Adapter	The adapter requires these parameters to process the request. Please ensure these parameters are specified in the request.
AESEBL-990150	**Incoming request does not contain %1 sequence.**		
	Error	Adapter	The adapter requires the sequence to process the request. Please ensure this sequence parameter is specified in the request.

Message	Role	Category	Resolution
AESEBL-990151	**Incoming %1 sequence is empty or invalid.**		
	Error	Adapter	The adapter requires the sequence to process the request. Please ensure this sequence parameter is specified in the request and is not empty or invalid.
AESEBL-990152	**Incoming request does not contain the event name.**		
	Error	Adapter	The adapter requires the event name to process the request. Please ensure event name parameter is specified in the request.
AESEBL-990153	**Incoming request does not contain the key.**		
	Error	Adapter	The adapter requires the key parameter to process the request. Please ensure key parameter is specified in the request.
AESEBL-990154	**Incoming request does not contain the verb code.**		
	Error	Adapter	The adapter requires the verb code to process the request. Please ensure that the verb code parameter is specified in the request.
AESEBL-990155	**Incoming request does not contain business document instance.**		
	Error	Adapter	The adapter requires the business document instance to process the request. Please ensure that the business document instance is specified in the request.
AESEBL-990156	**Incoming request does not contain %1 sequence or %2 search expression. Or %3 search expression is empty.**		
	Error	Adapter	The adapter requires the search expression to process the request. Please ensure the search expression or sequence is specified in the request.

Message	Role	Category	Resolution
AESEBL-990157	**Incoming request does not contain %1 sequence or %2 search attribute value. Or %3 sequence is empty.**		
	Error	Adapter	The adapter requires the sequence or search attribute value to process the request. Please ensure the sequence or search attribute value is specified in the request.
AESEBL-990159	**Unable to connect to Siebel Server as login %1.**		
	Error	Application	Incoming request should contain a valid login/password to connect to the Siebel Server.
AESEBL-990160	**Incoming request contains an unsupported or invalid view mode.**		
	Error	Adapter	Please check the Siebel application for valid view modes.
AESEBL-990161	**Cannot setup administration handler.**		
	Error	Configuration	An internal adapter error has occurred. Report the problem to TIBCO Support.
AESEBL-990165	**Failed to process request %1.**		
	Error	Adapter	Contact TIBCO Support.
AESEBL-910003	**Startup Error. The command-line argument: %1 has not been specified.**		
	Error	Configuration	Please specify the command-line parameter.
AESEBL-910004	**Startup Error. SDK Exception %1 occurred in the adapter initialization while creating the MAppProperties object. The Repository URL is %2 and the Configuration URL is %3.**		
	Error	Configuration	Please refer to SDK documentation for Repository URL and Configuration URL specification.
AESEBL-910005	**Startup Error. SDK Error %1 received on starting the adapter after initialization. The Repository URL is %2 and the Configuration URL is %3.**		
	Error	Configuration	Please verify your repository settings.

Message	Role	Category	Resolution
AESEBL-990168	**Event %1 timed out.**		
	Error	Adapter	Please check the timeout value in the adapter configuration. Enter optimal value for the timeout according to your requirements and your environment.
AESEBL-990173	**Unknown exception in reply handler.**		
	Error	Adapter	An internal adapter error has occurred. Report the problem to TIBCO Support.
AESEBL-990175	**Trace file name not specified.**		
	Error	Configuration	Please check your adapter configuration and ensure that, the Siebel trace file name is specified in the configuration.
AESEBL-990176	**Trace type not specified.**		
	Error	Configuration	Please check your adapter configuration and ensure that, the Siebel trace type is specified in the configuration.
AESEBL-990178	**Trigger key name not set key value: %1.**		
	Error	Adapter	Please check your adapter configuration and verify the activations and ensure that, the trigger key name is specified.
AESEBL-990181	**%1 subscriber not found.**		
	Error	Configuration	Please check your adapter configuration and ensure the subscriber endpoint is specified in the configuration.
AESEBL-990182	**Siebel component initialization failed.**		
	Error	Configuration	Please verify Siebel is installed properly. User name or password may be invalid. Please check the adapter configuration and verify the Siebel connection parameters.

Message	Role	Category	Resolution
AESEBL-990183	**Events specifications initialization failed.**		
	Error	Configuration	Please check the events and activations specifications in the adapter configuration.
AESEBL-990184	**Execution engine pre-initialization failed.**		
	Error	Configuration	An internal adapter error has occurred. Report the problem to TIBCO Support.
AESEBL-990185	**Metadata adapter initialization failed.**		
	Error	Configuration	An internal adapter error has occurred. Report the problem to TIBCO Support.
AESEBL-990186	**Shutting down metadata adapter.**		
	Warning	System	
AESEBL-990188	**Adapter reached maximum number of failed events.**		
	Error	System	Please check your adapter configuration, and if necessary, increase the maximum number of failed events specified in the configuration.
AESEBL-990189	**Invalid or empty business event name.**		
	Error	Adapter	The adapter requires the event name parameter to process the request.
AESEBL-990190	**Invalid or empty outbound Request Message.**		
	Error	Adapter	The request sent from Siebel is not valid.
AESEBL-990191	**Invalid or empty operation type.**		
	Error	Adapter	The adapter requires the operation code parameter to process the request.
AESEBL-990192	**Invalid or empty search key name.**		
	Error	Adapter	The adapter requires the search key name parameter to process the request.

Message	Role	Category	Resolution
AESEBL-990193	**Invalid or empty search key value.**		
	Error	Adapter	The adapter requires the search key value parameter to process the request.
AESEBL-990194	**%1**		
	Warning	Adapter	This is a Generic warning message.
AESEBL-990195	**Invalid event name or operation code. (%1 [%2]).**		
	Warning	Adapter	Please check the documentation for the list of valid operation codes.
AESEBL-990196	**Attribute %1 is not defined in incoming class %2.**		
	Warning	Adapter	Please check the class definition in your adapter configuration and then add the attribute.
AESEBL-990197	**Siebel field %1 not updated.**		
	Warning	Adapter	
AESEBL-990198	**Unsupported object type %1 for %2. Match property value not added for this rule.**		
	Warning	Adapter	An internal adapter error has occurred. Report the problem to TIBCO Support.
AESEBL-990199	**%1 is %2. %3 field not appended to the message.**		
	Warning	Adapter	The Siebel field is defined as Inactive.
AESEBL-990202	**Class description for %1 class not found.**		
	Warning	Configuration	Please check the class description in your adapter configuration and ensure the class definition is specified in the configuration.

Message	Role	Category	Resolution
AESEBL-920001	**Subscription error. Subscription service %1 listening on %2 received an unexpected event of type = %3, Expects event %4. The Repository URL is %5 and the Configuration URL is %6.**		
	Error	Adapter	Check the configuration of the application that is publishing the event and ensure that it matches the inbound event definition for the above subscription service. Please refer to the *TIBCO Adapter for Siebel User's Guide* for details on configuration of subscription service.
AESEBL-920003	**Subscription error. Subscription service %1 listening on subject %2 received inbound event with null data. The Repository URL is %3 and the Configuration URL is %4.**		
	Error	Adapter	Check the configuration of the application that is publishing the event and ensure that it matches the inbound event definition for the above subscription service. Please refer to the User's Guide for details on configuration of subscription service.
AESEBL-920004	**Subscription error. Subscription service %1 listening on subject %2 could not deserialize the inbound event to MBusinessDocument %3. The Repository URL is %4 and the Configuration URL is %5.**		
	Error	Adapter	Check the configuration of the application that is publishing the event and ensure that it matches the inbound event definition for the above subscription service. Please refer to the User's Guide for details on configuration of subscription service.
AESEBL-920002	**Subscription error. Subscription service %1 failed to deserialize the event received on subject %2 and SDK exception thrown is %3. The Repository URL is %4 and the Configuration URL is %5.**		
	Error	Adapter	Check the configuration of the application that is publishing the event and ensure that it matches the inbound event definition for the above subscription service. Please refer to the User's Guide for details on configuration of subscription service.

Message	Role	Category	Resolution
AESEBL-920007	**Subscription error. Subscription service %1 listening on subject %2 could not get the class description of %3. The Repository URL is %4 and the Configuration URL is %5.**		
	Error	Adapter	Please check the repository configuration for this service. Please refer to the User's Guide for details on how to configure, run and test the subscription service.
AESEBL-920012	**Subscription error. Subscription service %1 listening on subject %2 received MBusinessDocument %3 with NULL value for attribute %4.**		
	Error	Adapter	Check the configuration of the application that is publishing the event and ensure that it matches the inbound event definition for the above subscription service. Please refer to the User's Guide for details on configuration of subscription service.
AESEBL-920013	**Subscription error. Subscription service %1 listening on subject %2 received MBusinessDocument %3 with invalid value %4 for attribute %5.**		
	Error	Adapter	Check the configuration of the application that is publishing the event and ensure that it matches the inbound event definition for the above subscription service. Please refer to the User's Guide for details on configuration of subscription service.
AESEBL-920017	**Subscription error. Subscription service %1 listening on %2 could not send response %3 on reply subject %4. The parameters for publisher endpoint for sending the reply are %5. Repository URL is %6 and Configuration URL is %7.**		
	Error	Adapter	Please check your repository settings for the publish endpoint of this subscription service. Please refer to the User's Guide on how to configure the subscription service.

Message	Role	Category	Resolution
AESEBL-920018	**Subscription error. Subscription service %1 listening on %2 could not send target application invocation error %3 on error subject %4. The parameters for publisher endpoint for sending the reply are %5.**		
	Error	Adapter	Please check your repository settings for the publish endpoint of this subscription service. Please refer to the User's Guide on how to configure the subscription service.
AESEBL-990204	**[Adapter specific context = %1] Running out of memory when trying to create a new object. Shutting down...**		
	Error	System	Close some of the processes which are running on the machine on which the adapter is running.
AESEBL-990205	**Dump of tracking information for the exception.**		
	Error	Adapter	Indicates normal adapter operation. No action required.
AESEBL-990206	**Startup Error. Unable to create a connection with the target application %1 using connection parameters: userid = %2, Connect String = %3, Language parameter = %4, application error : %5.**		
	Error	Adapter	Please verify the adapter connection parameters and the Siebel Server status.
AESEBL-990002	**Shutdown error. SDK cleanup exception = %1.**		
	Error	Adapter	Contact TIBCO Support.
AESEBL-940001	**Request-Response error. Request-Response service %1 listening on %2 received unexpected null data in incoming request. Expects event %3. The Repository URL is %4 and the Configuration URL is %5.**		
	Error	Adapter	Please check the configuration of the application that is requesting the event and ensure that it matches the inbound event definition for the above Request-Response service. Please refer to the User's Guide for details on configuration of Request Response service.

Message	Role	Category	Resolution
AESEBL-940004	**Request-Response error. Request-Response service %1 failed to deserialize the received MServerRequest to MInstance: Received event on subject %2, event = %3, SDK exception = %4. The Repository URL is %5 and the Configuration URL is %6.**		
	Error	Adapter	Please check the configuration of the application that is requesting the event and ensure that it matches the inbound event definition for the above Request-Response service. Please refer to the User's Guide for details on configuration of Request-Response service.
AESEBL-940006	**Request-Response error. Error in incoming data for RPC service: %1 on subject: %2. Missing mandatory parameter %3 for RPC input class %4.**		
	Error	Adapter	Please check the configuration of the application that is requesting the event and ensure that it matches the inbound event definition for the above Request-Response service. Please refer to the User's Guide for details on configuration of Request-Response service.
AESEBL-940009	**Request-Response error. Request-Response service %1 listening on subject %2 received a time out error. Time out period in configuration file is %3.**		
	Error	Adapter	Check the target application command and the parameters and ensure they are valid. Cut and paste the command on a target application GUI and verify whether it succeeds.
AESEBL-940010	**Request-Response error. Request-Response service %1 listening on subject %2 failed to create Reply Business Object Error %3.**		
	Error	Adapter	Check the target application command and the parameters and ensure they are valid. Cut and paste the command on a target application GUI and verify whether it succeeds. Check the connection time out parameter in configuration file.

Message	Role	Category	Resolution
AESEBL-940011	**Request-Response error. Request-Response service %1 listening on subject %2 received an error while sending Data on Reply Address %3. Error Message %4.**		
	Error	Adapter	Please check whether the request client is alive.
AESEBL-930004	**Publication error. Publication service %1 with publishing subject %2 received the event from target application %3. It failed while converting event to "MInstance" as it could find property %4 in class %5. Repository URL is %6 and the Configuration URL is %7.**		
	Error	Adapter	Please verify the configuration of the Publication service and check that the schema definitions are present in the repository. Please refer to the User's Guide for details on how to configure a Publication service.
AESEBL-930007	**Publication error. Publication service %1 received event from target application but could not create the business document %2. The target application details are %3, the Repository URL is %4 and the Configuration URL is %5.**		
	Error	Adapter	Please verify the configuration of the Publication service and check that the schema definition for the MbusinessDocument maps properly to the event received from the target application. Please refer to the User's Guide for details on how to configure a Publication service.
AESEBL-930014	**Publication error. Publication service %1 with publication subject %2 received error while sending event over the wire. The Publish endpoint details are %3.**		
	Error	Adapter	Please check repository settings for the valid configuration of the publish endpoint for this service. Please refer to the User's Guide for details on setting up a publish end point and a Publication service.

Message	Role	Category	Resolution
AESEBL-930008	**Publication error. Publication service %1 with publication subject %2 received SDK Exception %3 while converting the event received from target application to BusinessDocument. The exception occurred while setting the attribute %4 with value of %5 for Business Document %6. The target application details are %7, the Repository URL is %7 and Configuration URL is %8.**		
	Error	Adapter	Please verify the configuration of the Publication service and check that the schema definition for the MBusinessDocument maps properly to the event received from the target application. Please refer to the User's Guide for details on how to configure a Publication service.
AESEBL-950001	**Request-Response Invocation error. Request-Response Invocation service %1 received event from target application %2. It failed while converting event to Request, as it could not get the class description for %3. Repository URL is %4 and the Configuration URL is %5.**		
	Error	Adapter	Please verify the configuration of the Request-Response Invocation Service and check that the schema/class definitions are present in the repository. Please refer to the User's Guide for details on how to configure a Request-Response Invocation Service.
AESEBL-950002	**Request-Response Invocation error. Request-Response Invocation service %1 with subject as %2 received event from target application %3. It failed while converting event to Request, as it could not get the Operation description %4 in the class %5. Repository URL is %5 and the Configuration URL is %6.**		
	Error	Adapter	Please verify the configuration of the Request-Response Invocation Service and check that the schema/class definitions are present in the repository. Please refer to the User's Guide for details on how to configure a Request-Response Invocation Service.

Message	Role	Category	Resolution
AESEBL-950003	**Request-Response Invocation error. Request-Response Invocation service %1 with subject as %2 received event from target application %3. It failed while converting event to Request. Repository URL is %5 and the Configuration URL is %6.**		
	Error	Adapter	Please verify the configuration of the Request-Response Invocation Service and check that the schema/class definitions are present in the repository. Please refer to the User's Guide for details on how to configure a Request-Response Invocation Service.
AESEBL-950004	**Request-Response Invocation error. Request-Response Invocation service %1 with subject as %2 received event from target application %3. It failed while converting event to Request. Repository URL is %5 and the Configuration URL is %6.**		
	Error	Adapter	Please verify the configuration of the Request-Response Invocation Service and check that the schema/class definitions are present in the repository. Please refer to the User's Guide for details on how to configure a Request-Response Invocation Service.
AESEBL-910007	**Startup Error. Unable to create a connection with the target application %1 using connection parameters: userid = %2, Connect String = %3, Language parameter = %4, application error : %5.**		
	Error	Adapter	Please verify the adapter connection parameters and the Siebel Server status.
AESEBL-910008	**Unable to create required number of connections with the target application %1, Connection pool size is %2. Created connections is %3.**		
	Error	Adapter	Please verify the adapter connection parameters and the Siebel Server status.
AESEBL-990005	**Shutdown error. Error in disconnecting from Siebel Server, application error :%1**		
	Error	Adapter	Please check the Siebel server and database connectivity.

Message	Role	Category	Resolution
AESEBL-990207	**Business Service Error while %1, for %2 (%3).**		
	Error	Adapter	Invalid Business Service. Please verify in Siebel.
AESEBL-910006	**Startup Error. SDK Exception %1 occurred while creating a shutdown listener with parameters %2. The Repository URL is %3 and the Configuration URL is %4.**		
	Error	Adapter	Check if the valid terminate subject is specified in the adapter configuration.
AESEBL-910013	**Startup Info. Creating a %1 shutdown listener with subject %2.**		
	Information	Adapter	Indicates normal adapter operation. No action required.
AESEBL-910014	**Startup Info. Could not find the repository tag: %1.**		
	Information	Adapter	Indicates normal adapter operation. No action required.
AESEBL-910015	**Startup Info. Creating %1 dispatchers for session %2.**		
	Information	Adapter	Indicates normal adapter operation. No action required.
AESEBL-990208	**Unable to connect to Siebel Server. Checking for Siebel Server connection. Reconnect attempt %1.**		
	Error	Adapter	Check if the Siebel server is up and if the Object Manager is running.
AESEBL-990209	**Reconnect succeeded on attempt %1**		
	Information	Adapter	Indicates normal adapter operation. No action required.
AESEBL-990210	**Suspending the Subscription services.**		
	Information	Adapter	Indicates normal adapter operation. No action required.

Message	Role	Category	Resolution
AESEBL-990211	**Failed to reconnect to the target application. Please check the Siebel Server and database connectivity and restart the adapter. Application Stopped...**		
	Error	Adapter	Please check the Siebel Server and database connectivity and restart the adapter.
AESEBL-990212	**Re-initializing the connection pool.**		
	Information	Adapter	Indicates normal adapter operation. No action required.
AESEBL-990213	**Activating the Subscription services.**		
	Information	Adapter	Indicates normal adapter operation. No action required.
AESEBL-940008	**Request-Response error. Connection error in invocation of RPC service:%1 on subject:%2. Unable to connect to Siebel Server. Please check the Siebel Server and Database Connectivity.**		
	Error	Adapter	Please check the Siebel Server and Database Connectivity.
AESEBL-920014	**Subscription error. Subscription service %1 listening on subject %2 could not process the inbound event due to connection error against target application Siebel.**		
	Error	Adapter	Please check the Siebel Server and Database Connectivity.
AESEBL-940003	**Request-Response error. Error in incoming data for RPC service: %1 on subject: %2. Error while forming reply schema for RPC input class %3.**		
	Error	Adapter	Please check the configuration of the application that is requesting the event and ensure that it matches the inbound event definition for the above Request-Response service. Please refer to the User's Guide for details on configuration of the Request-Response service.

Message	Role	Category	Resolution
AESEBL-940002	**Request-Response error. Error in reading data for RPC service: %1 on subject: %2. Error while retrieving the request data. Error Message %3.**		
	Error	Adapter	Please check the configuration of the application that is requesting the event and ensure that it matches the inbound event definition for the above Request-Response service. Please refer to the User's Guide for details on configuration of Request-Response service.
AESEBL-950011	**Request-Response Invocation error. Request-Response Invocation service %1 received timeout error while requesting event over the wire.**		
	Information	Adapter	Please check repository settings for valid configuration of the Request-Response Invocation endpoint for this service. Please refer to the User's Guide for details on setting up a Request-Response Invocation end point and a Request-Response Invocation service.
AESBL-990083	**Error in initializing the configured HTTPS Port. Outbound scenarios will fail to work.**		
	Information	Adapter	Reconfigure the HTTPS Port and try again.
AESEBL-990224	**Connection pool is re-initialized and subscribers are activated.**		
	Information	Adapter	Indicates normal adapter operation. No action required.
AESEBL-990225	**Application Error: Connection error in invocation of service: %1. Unable to connect to Siebel Server. Please check the Siebel Server and Database Connectivity.**		
	Error	Adapter	Please check the Siebel Server and Database Connectivity.
AESEBL-990825	**Processing for the event %1 failed due to unavailability of JMS Server.**		
	Information	Adapter	Check if the JMS server is up.

Message	Role	Category	Resolution
AESEBL-990224	**Connection pool is re-initialized and subscribers are activated.**		
	Information	Adapter	Indicates normal adapter operation. No action required.
AESEBL-990225	**Application Error: Connection error in invocation of service: %1. Unable to connect to Siebel Server. Please check the Siebel Server and Database Connectivity.**		
	Error	Adapter	Please check the Siebel Server and Database Connectivity.
AESEBL-990825	**Processing for the event %1 failed due to unavailability of JMS Server.**		
	Information	Adapter	Check if the JMS server is up.
AESEBL-910007	**Startup Error. Unable to create a connection with the target application Siebel Server using connection parameters: userid = sadmin, Connect String = siebel.tcpip.none.zlib://kangchenjunga/entr/SCCObjMgr_enu/, Language parameter = enu, application error : Could not open a session in 4 attempts. {1}.**		
	Error	Adapter	This error occurs if the machine where adapter is running is not able to access or connect to the Siebel Gateway server host. Make sure that the Gateway Server host is accessible to Adapter. On Unix platform, verify if there is an entry of the Gateway Server machine (IP address) in the hosts file of the machine where Adapter is running.

Commonly Reported Siebel Errors

Message code `ADSBL000755` indicates that a Siebel error has occurred. It may refer to errors described in the next table.

Table 24 Commonly Reported Siebel Errors

Message Code	Description	Role	Category	Resolution
ADSBL000755	An error has occurred executing a Sql statement. Please continue or ask your systems administrator to check your application configuration if the problem persists. [Microsoft][ODBC SQL Server Driver][SQL Server]Line 3: Incorrect syntax near ','. [Microsoft][ODBC SQL Server Driver][SQL Server] The cursor was not declared.	Error	Configuration	This error is thrown when the adapter tries to update fields having a '#' in them. Please check if the field has a base column linked to it.
ADSBL000755	The specified language function is not defined.	Error	Configuration	Siebel Scripting issue. Incase of Siebel 6.2.x and higher systems, open the Siebel configuration file. Under the [Siebel] section, set EnableScripting=False and retry. If the adapter runs successfully, it indicates that the issue is with Siebel Scripts that are being called as part of this configuration.
ADSBL000755	An error has occurred executing a Sql statement. The error description is: "Siebel Error Message SBL-DAT-00500: There were more rows than could be returned. Please refine your query to bring back fewer rows."	Error	Configuration	This happens when you perform a query or search which is trying to return more rows than is allowed in a result set.

Appendix C Troubleshooting

This appendix lists troubleshooting information.

Topics

Improper result-set while querying through the adapter

Symptom

The adapter returns only one record during Request-Response, even if it finds multiple records.

Probable Cause

A single Business Component is used as both parent and child. As a result, when the Business Component is queried for the second time, the result set returned by the first query gets reset (overwritten) with the result set of the second query.

Solution

Create a dummy Business Object and associate the Business Component with this dummy Business Object. Configure the service with the parent Business Component from the first Business Object, and the child with the dummy Business Object.

Or

Clone the Business Component in Siebel. Use the original Business Component as the parent and the cloned Component as the child.

Improper results while querying for a Child Integration Component

Symptom

The adapter returns all child records when a query is executed for a Child Integration Component in a parent-child configuration.

Probable Cause

The adapter does not support queries on Child Integration Components. This search condition is allowed only for primary Integration Components.

Solution

Configure the adapter to invoke the `Query` method of the `EAI Siebel Adapter` Business Service.

1. Configure a Request-Response service with type set as `Invoke Business Service`.
2. Click the **Fetch** button in the `Configuration` tab and choose the Business Service `EAI Siebel Adapter`.
3. Select `Query` as the `Method Name`.
4. Type the Integration Object Name that you want to query in the `Integration Object Name` field.
5. Click **Apply**.
6. When the `Do You wish to generate the Integration Object schema also` dialog box appears, click **Yes**.
7. Configure the schema for Integration Objects.
8. In the `Reply Schema Reference` field of the `Configuration` tab, select the schema `AESchemas/ae/siebel/<adapterInstanceName>/businessDocument/Classes/<EventName of the RPC Server configured above>` using the **Browse** button.
9. Apply the changes and run the configuration.

Unable to configure the adapter in Fault Tolerant Mode

Symptom

I am unable to configure the adapter for the fault tolerant mode.

Probable Cause

The adapter can be configured for load balancing via CMQ (Inbound services), but cannot be configured for fault tolerance.

Solution

All inbound (Subscription/Request-Response) services can be configured in the Distributed Queue (CMQ) mode. CMQ parameters like `Scheduler weight`, `Listener weight` etc., can be set on the session (`<adapterInstance>/Advanced/Sessions/DefaultRVCMQSession`) to which the adapter services belong.

When multiple adapter instances run in the load balancing (CMQ) mode and one of the instances goes down, the rest of the active members of the DQ automatically share the load (thus providing fault tolerance).

An external (third-party) HTTP load balancer has to be used in order to share the load on outbound scenarios (Publication/Request-Response Invocation).

Unable to pass input data through Application Context while using Siebel Workflow

Symptom

Input data does not pass via the `ApplicationContext` element to a Siebel workflow using a Request-Response service.

Probable Cause

The input data is passed via `ApplicationContext` when the integration object schema is configured for workflow invocation.

Solution

Use the `ApplicationContext` field only when you have not created a schema for the service. When the Integration Object schema is created, the input data can be directly provided in the `ListOfSiebel...` field of the Business Component.

Also, when the Request-Response service is configured for an Integration Object (`Yes` for Integration Object), the adapter builds the property set as `SiebelMessage` and for non Integration Objects the property set is `TibcoMessage`. Hence, the workflow has to be modified to read `SiebelMessage` property instead of `TibcoMessage`.

Unable to detect the query condition added to the sublevels

Symptom

The adapter is unable to detect the query condition added to the sublevels.

Probable Cause

The adapter does not allow querying or filtering on Child Business Components. The query for a child Business Component will be based only on the match field specified (between parent and child).

Solution

Filter the child records in TIBCO IntegrationManager or TIBCO BusinessWorks before sending the data to the external application.

Unable to fetch the repository list

Symptom

When I try to establish a design-time connection to Siebel 6.2.1.10, the following error is displayed:

```
Processing
/tibco/private/adapter/siebel/adsblDTAConfiguration_RV/SiebelAdapt
er
...

*****************************************************************
    Application : SiebelAdapter
    RepoURL     :
D:/tibco/adapter/adsbl/<version_num>/bin/adsblDTA.dat
    ConfigURL   :
/tibco/private/adapter/siebel/adsblDTAConfiguration_RV
    Version     : 5.3<version_num>.0.19
    Instance ID : adsblDTAConfiguration_RV
    Description : TIBCO Adapter for Siebel
-----------------------------------------------------------------
    Developed with TIBCO Adapter SDK for Java
    Version 5.0.4.16
    Copyright 1998-2003 by TIBCO Software Inc.
    ALL RIGHTS RESERVED
*****************************************************************

Application Initializing.............
        . Creating Administration handler...
        . Creating request/reply operation server...
        . Creating Stop Subscriber Listeners...
2004 Feb 18 18:29:01:922 GMT +0 adsblDTAConfiguration_RV Info
[Adapter] AESEBL-9
10013 "Startup Info. Creating a RV shutdown listener with subject
adsbl.shutdown
."
2004 Feb 18 18:29:01:953 GMT +0 adsblDTAConfiguration_RV Info
[Configuration] AE
SEBL-990038 "Application Ready."
2004 Feb 18 18:31:54:779 GMT +0 adsblDTAConfiguration_RV Error
[Application] AES
EBL-990109 "Unable to set Siebel shared global variable
TIBSiebelComponent: Unab
le to create the Business Service 'EAI TIBCO HTTP Agent'.  Make
sure, the custom
 Business service 'EAI TIBCO HTTP Agent' is imported in to the
Siebel System."
2004 Feb 18 18:31:54:779 GMT +0 adsblDTAConfiguration_RV Info
[Adapter] AESEBL-9
60023 "Number of connected TIBCO Design Time Adapter Client: 1"
2004 Feb 18 18:31:56:154 GMT +0 adsblDTAConfiguration_RV Info
[Adapter] AESEBL-9
```

```
90035 "Incoming event is _TIBCO_Repository with Operation type 1."
tracking=#dWi
elmVimSLtqkUNUpzzw2oUzzw#
java.lang.NoSuchMethodError:
com.siebel.data.SiebelBusObject.release()V
        at
tibco.adapter.sbl.tdeng.TdDataBean.ReleaseBusObj(TdDataBean.java:2
672
)
        at
tibco.adapter.sbl.tdeng.TdProcessor.clearSiebBusObjectCache(TdProc
ess
or.java:1380)
        at
tibco.adapter.sbl.tdeng.TdProcessor.clearSiebCache(TdProcessor.jav
a:1
309)
        at
tibco.adapter.sbl.tdeng.CBusComp.ExecuteEventPub(CBusComp.java:286
)
        at
tibco.adapter.sbl.tdeng.TdProcessor.ExecuteEvent(TdProcessor.java:
249
)
        at
tibco.adapter.sbl.tdpub.TdRpcEventImpl.handleEvent(TdRpcImpl.java:
433
)
        at
tibco.adapter.sbl.tdpub.TdRpcGetEventImpl.onInvoke(TdRpcImpl.java:
145
4)
        at
com.tibco.sdk.rpc.i.onEvent(MRpcServerOperationEventListener.java:
152
)
        at com.tibco.sdk.events.rv.b.if(MRvConsumerImpl.java:277)
        at com.tibco.sdk.events.rv.b.a(MRvConsumerImpl.java:197)
        at com.tibco.sdk.rpc.a.c.a(MRpcServerRvImpl.java:70)
        at
com.tibco.sdk.events.rv.b.onMsg(MRvConsumerImpl.java:101)
        at com.tibco.tibrv.TibrvEvent.invoke(TibrvEvent.java:160)
       at com.tibco.tibrv.TibrvImplQGroupC.natTimedDispatch(Native
Method)
        at
com.tibco.tibrv.TibrvImplQGroupC.timedDispatch(TibrvImplQGroupC.ja
va:
73)
        at
com.tibco.tibrv.TibrvQueueGroup.timedDispatch(TibrvQueueGroup.java
:18
2)
        at com.tibco.sdk.m.if(MAppImpl.java:555)
        at com.tibco.sdk.m.do(MAppImpl.java:139)
        at com.tibco.sdk.MApp.nextEvent(MApp.java:263)
        at com.tibco.sdk.events.c.a(MDispatcher.java:113)
        at com.tibco.sdk.events.h.run(MDispatcher.java:92)
```

```
        at java.lang.Thread.run(Thread.java:534)
2004 Feb 18 18:36:56:135 GMT +0 adsblDTAConfiguration_RV Info
[Adapter] AESEBL-9
60023 "Number of connected TIBCO Design Time Adapter Client: 0"
2004 Feb 18 18:36:56:150 GMT +0 adsblDTAConfiguration_RV Info
[Configuration] AE
SEBL-990006 "Siebel Server disconnected."
```

Probable Cause

A minimum 6.2.1.110 version of the Siebel application is a mandatory requirement as mentioned in the *readme.txt* file (part of the adapter installation). The release method incorporated ensures that there is no memory leak while using java data beans. It also ensures that all open cursors are closed after method invocation. The error occurs because this method is not present in the jar files being used.

Solution

Upgrade the Siebel application version to 6.2.1.110.

Unable to start the adapter

Symptom

When I configure the services and run the adapter, the following error is displayed:

```
*****************************************
Processing /tibco/private/adapter/Adapter
Services/SiebelAdapterConfiguration/SiebelAdapter ...
AESEBL-910005  Startup Error. SDK Exception "Invalid assoc key:
deliveryMode/." received on starting the adapter after
initialization.  The Repository URL is
D:\tibco\adapter\adsbl\<version_num>\bin\AT_adsbl_7783.dat and the
Configuration URL is Adapter Services/SiebelAdapterConfiguration
Initialization Failed, Exiting...
*****************************************
```

The same error is displayed after deleting the adapter configuration and recreating it.

Probable Cause

This problem occurs when the repository is corrupt due to an improper deletion or change. The error is thrown when the delivery node entry for the services configured is deleted.

Solution

Create the adapter service once again.

The Adapter Hangs when Deployed using TIBCO Administrator

Symptom

The adapter hangs in the Startup mode when deployed using TIBCO Administrator.

On execution from the command line the following error is displayed:

```
AESEBL-990109 Unable to set Siebel shared global variable
TIBSiebelComponent: Unable to create the Business Service 'EAI
TIBCO HTTP Agent'.  Make sure, the custom Business service 'EAI
TIBCO HTTP Agent' is imported in to the Siebel System.
```

However, the message `Application Ready` is displayed finally. Hence it is not possible to determine whether the adapter has started successfully or not.

Probable Cause

The adapter starts up correctly only when the message `Application Ready`, is displayed. The error message is displayed only when you publish an event from Siebel to the adapter.

Solution

Import the `EAI TIBCO HTTP Agent` Business service to `Siebel.srf`. Check the log files during deployment to observe if the `Application Ready` status is displayed or not. The deployment is correct if this status is displayed.

Unable to get the reply using Send/Receive function of the adapter

Symptom

The following message is displayed for the Send/Receive function of the TIBCO Siebel Adapter:

```
It is not possible to send back the reply after substituting the
data element with the reply schema, which in our case is same as
the integration object schema.
```

Probable Cause

Improper request generation due to an incorrect schema causes this error. Siebel generates two different XML structures to convert the property set to an XML format. For example:

If you use the `EAIXMLwritetoFile` business service, the structure is displayed as follows:

```
SiebelMessage>
    <ListOfSampleAccount>
        <Account>
            <Name>SomeName</Name>
            <Location>SomeLocation</Location>
            .....
            ....
        </Account>
    </ListOfSampleAccount>
</SiebelMessage>
```

If you use the `XML Converter` business service's `propSetToXML`, the structure of the XML is displayed as follows:

```
<SiebelMessage>
    <ListOfSampleAccount>
  <Account Name="SomeName" Location="SomeLocation ..... .... >
</Account>
    </ListOfSampleAccount>
</SiebelMessage>
```

The adapter expects the XML converter to generate the XML.

Solution

The adapter only supports XML structures generated by the business service `XML Converter`, but this business service varies in its behavior from Siebel version 7.0.3 to 7.5.3.

If you use the `XML Converter` business service with Siebel 7.5.3, the XML generated will not be in a format compliant with the adapter. Another tag called `PropertySet` is created around the `SiebelMessage` with the encoding of XML set to `UTF-8`. Manually replace encoding `UTF-8` with `UTF-16` and remove the `PropertySet` tag for the adapter to function properly. If the XML has a UTF-8 encoding, the adapter throws an XML Parser error and there is no option to set this parameter for the `XML Converter` business service.

To make the adapter work, write a custom business service to manipulate these changes.

Unable to invoke the workflow with the Integration Object

Symptom

When I try to invoke the workflow with an Integration Object the following error is displayed:

```
004 Jan 20 18:00:21:869 GMT -5
AccountPOC-SiebelAdapterConfiguration Error [Application]
AESEBL-990148 "Siebel InvokeMethod error, for RunProcess (No input
message specified for the service method argument(SBL-EAI-04398))."
tracking=#SZNtGpDxBMB5eU8GlPzzwDq-zzw#BW.AccountPOC.Test
RequestReply.process.Job-15000#SiebelAdapter.SiebelAdapterConfigur
ation.WorkflowServerEvent.SetEvent#

2004 Jan 20 18:00:21:869 GMT -5
AccountPOC-SiebelAdapterConfiguration Error [Application]
AESEBL-990148 "Siebel Workflow Process Manager error, for TMCC Test
Inbound ()."
tracking=#SZNtGpDxBMB5eU8GlPzzwDq-zzw#BW.AccountPOC.Test
RequestReply.process.Job-15000#SiebelAdapter.SiebelAdapterConfigur
ation.WorkflowServerEvent.SetEvent#

2004 Jan 20 18:00:21:901 GMT -5
AccountPOC-SiebelAdapterConfiguration Error [Adapter]
AESEBL-990037 "Event WorkflowServerEvent completed with result -60.
Time elapsed: 875 ms."
```

Probable Cause

The reply is named `SiebelMessage`. If you look for a different property set name in the reply, the particular error might be thrown.

Solution

Look for the appropriate property set.

Unable to provide a literal match condition while querying

Symptom

I query a Business Component, using the Request-Response service and use a usecase to query Siebel based on some specific conditions in the Business Component Fields.

For example, I have an `OrderEntry` Component, with fields C1, C2, C3, C4 and C5 defined under it. Is it possible to define an equivalent SQL query as shown below?

```
(C1 = "xxx" or C2 = "yyy") and (C3 = "zzz" or C4 = "yyy") and (C4
or C5).
```

Solution

It is recommended that filtering of data must use other TIBCO products like TIBCO IntegrationManager or TIBCO BusinessWorks. However, filtering can be achieved using the adapter by configuring the search specifications for a Business Component field. It should be done in the same way as while using a Siebel Client. For example, if you have a simple query with an OR condition, you can add this string in the literal match for the Business Component field.

```
_Eval(" [C1] = "xxx" or C2 = "yyy" ")
```

where `C2` is the Business Component field for which the search parameter is added and `C1` is another Business Component field.

Refer Siebel documentation for more details.

The adapter is unable to receive an event after reconnection

Symptom

While configuring inbound services with the `Distributed Queue` transport type, the adapter did not receive any event after one successful reconnection. The adapter works successfully after restarting. The Siebel server is not down.

Probable Cause

This occurs because the `Complete Time` parameter is set to the default value 0. When the parameter is set to 0, there is no limit on completion time. In this case the adapter will be able to process only one event after reconnection.

Solution

Set the Complete Time Parameter of the `RVCMQ` to a value other than the default 0

To change the parameter, follow the steps mentioned below.

- Go to `<Adapter_Instance>\Advanced\Sessions\<RVCMQ Session Name>`
- Change the `Complete Time` value to a value greater than 0, for example 15 or 20, depending on the requirement. Note that this parameter should not be negative.

Use any one of the following combinations for successful processing on reconnection:

- Subscribers of type `Distributed Queue`, `Complete Time` parameter set to a value other than 0. The Publisher can be configured to use any kind of transport.
- Subscribers of type `Distributed Queue`, `Complete Time` parameter set to value 0, Publishers must be only of a reliable type.
- Subscribers of type `Reliable`, `Publisher` can be configured to use any kind of transport.
- Subscribers of `Certified` type, `Publishers` can be configured to use any kind of transport.

Business service invocation timeout exception

Symptom

The HTTP Request from Siebel times out after a specific time and throws a Siebel exception.

Probable Cause

The custom business service i.e. `EAI TIBCO HTTP Agent`, uses the `EAI HTTP Transport` business service internally. This `EAI HTTP Transport` has a default timeout of 120 seconds. Hence, if the event takes more than 120 seconds, it shows a timeout.

Solution

If the event takes more than 120 seconds, set the property `HTTPRequestTimeout` in the input property set of custom business service. (Note that this is applicable only from Hotfix -1 onwards).

Reply is not received properly when containing special characters like Ñ, Õ

Symptom

The adapter is configured as a Request-Response Invocation Service (RPC-Client). The occurrences of special characters like Ñ, Õ etc., are visible in the reply. When I invoke the adapter, I get the message `Error Invoking method SendReceive` in the reply, but the TIBCO BusinessWorks process sends the reply back correctly. The same configuration works properly if I do not have these special ASCII characters.

Probable Cause

This is a problem with Siebel version 7.5.x. The custom business service (EAI TIBCO HTTP Agent) uses `EAI HTTP Transport` Business Service provided by Siebel internally. By default, the request is encoded in `UTF-8` format which is the `CharSetConversion` parameter provided to the `EAI HTTP Transport`. However, the `EAI HTTP Transport` cannot handle special characters like Ñ in the reply when `CharSetConversion` is set to `UTF-8`, and therefore it returns a blank value. As a result, the custom business service throws the error message without getting an appropriate reply.

Solution

Set the `CharSetConversion` parameter to `Local` instead of the default `UTF-8`. From Hotfix-1 onwards, this parameter is a configurable parameter in the input property set for the custom business service (`EAI TIBCO HTTP Agent`). If the reply contains special characters, then in the `input property set` add an extra parameter `CharSetConversion` with value `Local`. Note that, if you do not provide any value, it takes the UTF-8 as the default value. This option is applicable for the business service provided from Hotfix-1 onwards. You need to import the business service and recompile the `.srf` file.

Appendix D Siebel Workflow

Siebel Workflow is an interactive software tool that allows you to automate the Workflow Processes in your organization. This appendix explains how to use Siebel Workflow.

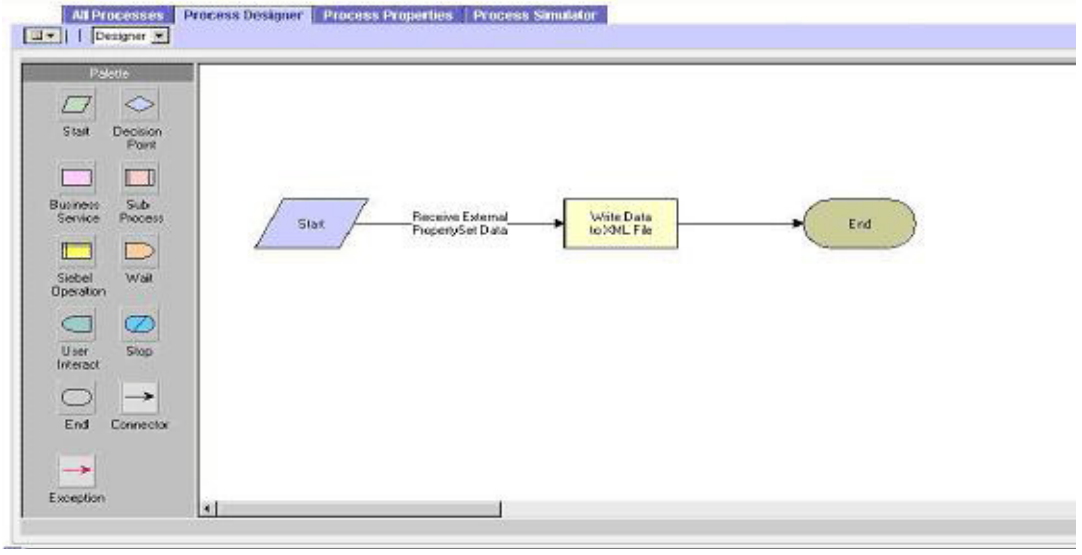
Topics

Overview

Siebel Workflow is an interactive software tool that allows you to automate the workflow process in your organization. Siebel Workflow allows you to define various business processes in your company. Using Workflow processes, you can define a process that consists of one or more process steps such as start steps, decision points, business services, sub-processes and tasks.

A task can be a `Predefined Business Service` or a `Custom Business Service`. Predefined tasks include updates to the Siebel database, notifications (such as an E-mail or page), integration messages to external systems, and calls to invoke server tasks. Custom tasks can be defined by using Siebel VB or Siebel eScript.

The Workflow Process module consists of a series of views to design the flow of a process and to design each step in the process.



Workflow processes can vary from a simple process such as entering a product order to a complex process such as managing call center workflow. Complex processes can comprise multiple smaller processes.

A Workflow process can be created and maintained using the Siebel Workflow Designer, a graphical tool which can be accessed using the Siebel Web Client.

Advantages of Using Siebel Workflow

The advantages of using Siebel Workflow are as follows:

- Workflow process invocation can be used in complex Business Scenarios where critical decision-making is involved.
- Workflow process can be customized using scripts and Business Services.
- Workflow processes can be run in a batch mode.
- A single Workflow process can be used with different Business Components and Integration Objects.

How the Adapter Handles Workflow Process

The adapter architecture supports the usage of Siebel Workflow Processes for both inbound and outbound scenarios.

- In the Outbound Scenario, the Workflow invokes the Publication or Request-Response Invocation service of the adapter.
- In the Inbound Scenario, the Subscription or Request-Response Service of the adapter invokes the Workflow.

Siebel Workflow Process in the Outbound Scenario

In the Outbound Scenario, the Workflow invokes the Publication or Request-Response Invocation service of the adapter. The `EAI TIBCO HTTP Agent` Business Service is used for invocation of the adapter.

For Publication, the Business Service provides following methods:

- `Get State` - This method checks the availability of the adapter and reports the result. This method can be used before invoking the adapter for actual processing.
- `Send` - The `Send` method is used to send the Publication request to the adapter.

For Request-Response Invocation, the Business Service provides following methods:

- `Get State` - This method checks the availability of the adapter and reports the result. This method can be used before invoking the adapter for actual processing.
- `SendReceive` - The `SendReceive` method can be used to send the Publication request to the adapter and get a reply.

Workflows used in the Outbound Scenario

The following workflows are used in the Outbound Scenario:

- TIBCO Send Business Event Publication Request with Reply - This sample workflow invokes the Request-Response Invocation service methods `GetState` and `SendReceive` of the `EAI TIBCO HTTP Agent` Business service to generate a Publication request on the Siebel Server and receive reply in the form of Siebel property set. The reply property set is then written to an XML file.
- TIBCO Send Business Event Publication Request - This sample workflow is used to invoke the Publication Service methods such as `GetState` and `Send` of

the `EAI TIBCO HTTP Agent` Business Service to generate a Publication request on the Siebel Server.

Siebel Workflow Process in the Inbound Scenario

In the Inbound Scenario, the Subscription or Request-Response Service of the adapter invokes the Workflow. The data that needs to be sent to this Workflow process can be configured. The Business Component and Integration Object data can be sent during the invocation.

The Subscription and Request-Response Service can invoke the Siebel Workflow process in the following ways

- Server request
- Client Request

Invoking Siebel Workflow as a Server request

When the Workflow process is invoked during Request-Response Service, the Workflow process is executed as Siebel Server task. This option can be configured during Subscription Service or Request-Response Service configuration. If the Workflow invocation is not chosen as `Server Request`, the adapter invokes the Workflow process as Client request. For more details refer *Siebel Bookshelf*.

If the Workflow is selected to be invoked as a Server request, the workflow can be invoked on Siebel server in following ways:

- Asynchronous Workflow invocation — When the workflow is invoked asynchronously a separate task is created on Siebel server which is run later. The distinguishing factor is that the workflow does not return any data and the invoking application does not wait for a reply. This type of invocation is useful where the workflow process steps take long time for completion.
- Synchronous Workflow invocation — When the workflow is invoked synchronously, the invoking application will wait for completion of workflow process and receive the reply.

Invoking Siebel Workflow process as Client Request

When the workflow process is invoked as client request the Adapter invokes the workflow process in its own process space.

Workflows used in the Inbound Scenario

The following workflows are used in the Inbound Scenario:

- TIBCO Sample Workflow Invocation from Subscriber — This workflow process demonstrates invocation by the Subscription Service of adapter. The adapter uses the custom user property `SiebelWorkflowProcess`. Data in application context of business event is converted into Siebel `PropertySet` and passed as the process property for the workflow process.
- TIBCO Sample Workflow Invocation from Subscriber for Integration Object — This sample workflow demonstrates invocation from Siebel subscriber through custom user property `SiebelWorkflowProcess`. Data in application context of business event is converted into Siebel `Property Set` and passed as the process property for the workflow process.

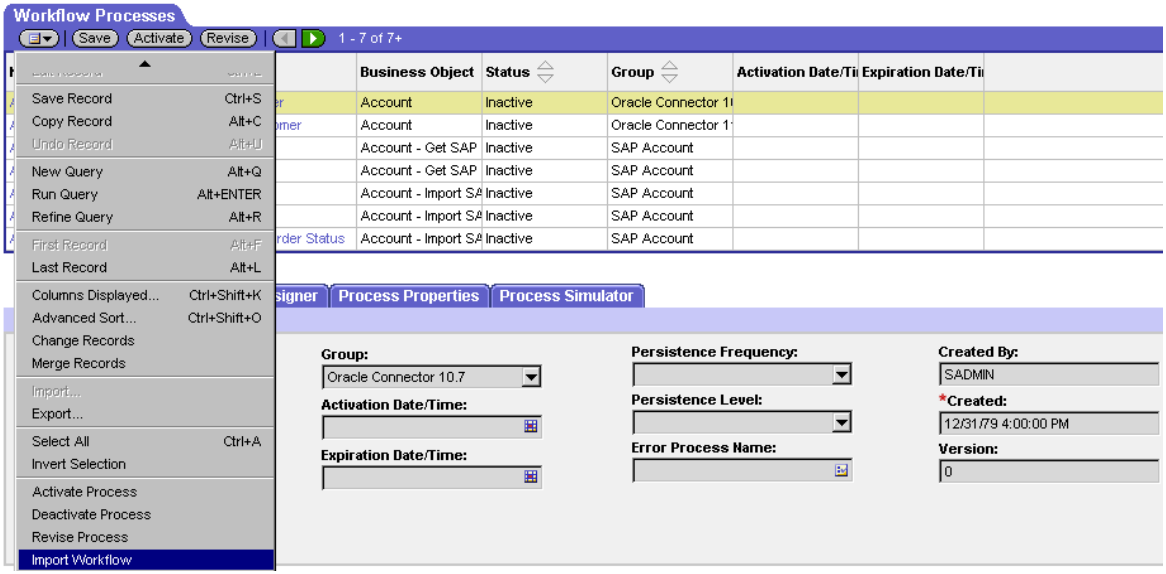
Importing Siebel Workflow

The Adapter installation provides sample Workflow processes. This section explains the process of importing a workflow process into Siebel 7.5.3.

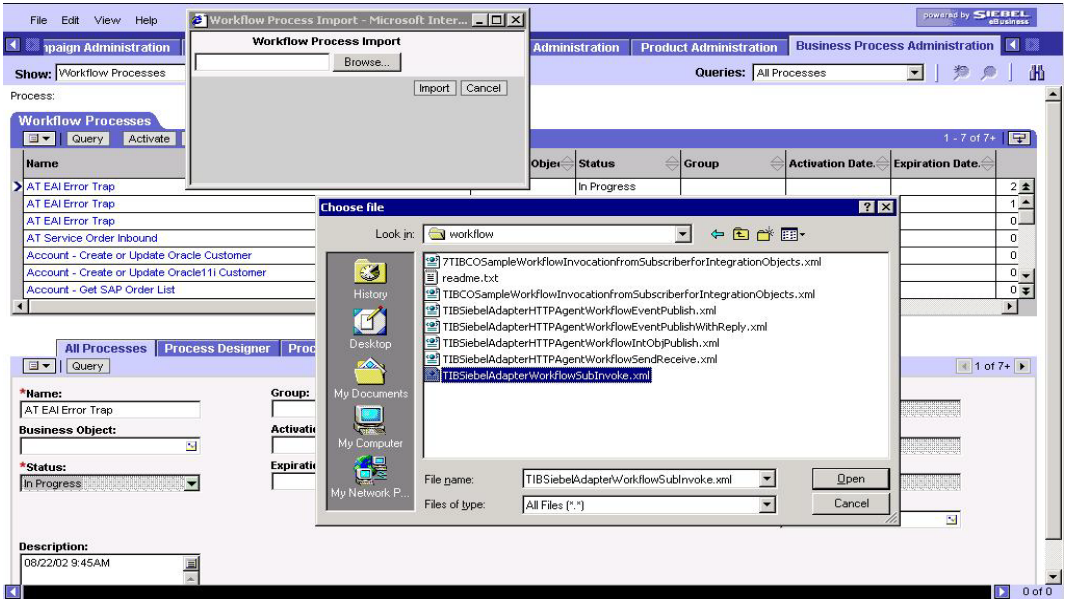
Follow the steps mentioned below to import the Workflow:

1. Open Siebel Dedicated Web Client and browse to the **Business Process Administration** section.
2. Click **Business Process Administration**.
3. Click **Workflow Processes**.

4. From the drop-down menu, select **Import Workflow** as shown next.



5. Click **Browse** and select the required file as shown next.



6. After selecting the required file, click **Import** to import the workflow.
7. Make necessary changes and activate the workflow process.

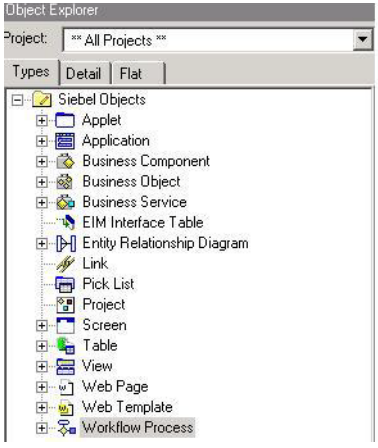
The Workflow Process import is now complete.

Importing Siebel Workflow in Siebel 7.7

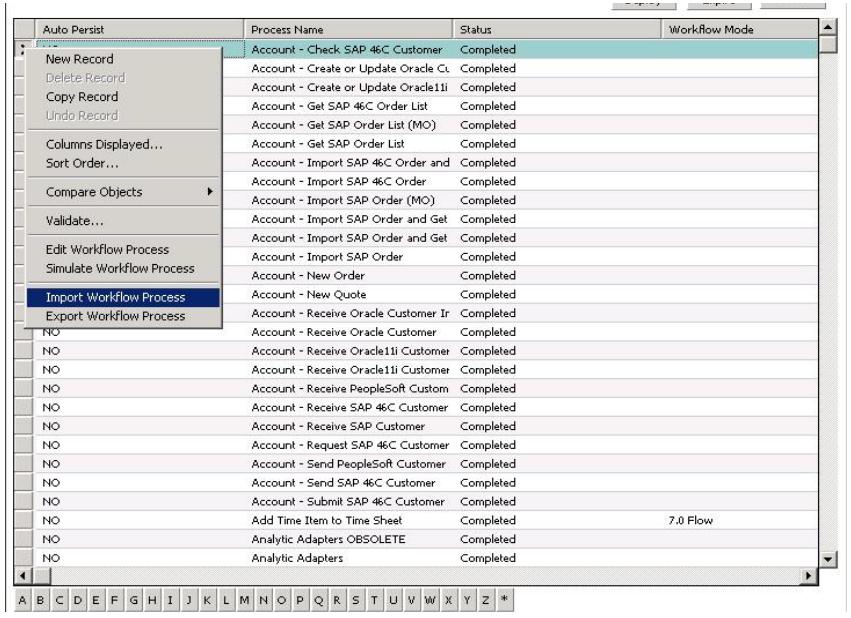
The Adapter installation provides sample Workflow processes. This section explains the process of importing a workflow process into Siebel 7.7.

Follow the steps mentioned below to import the Workflow:

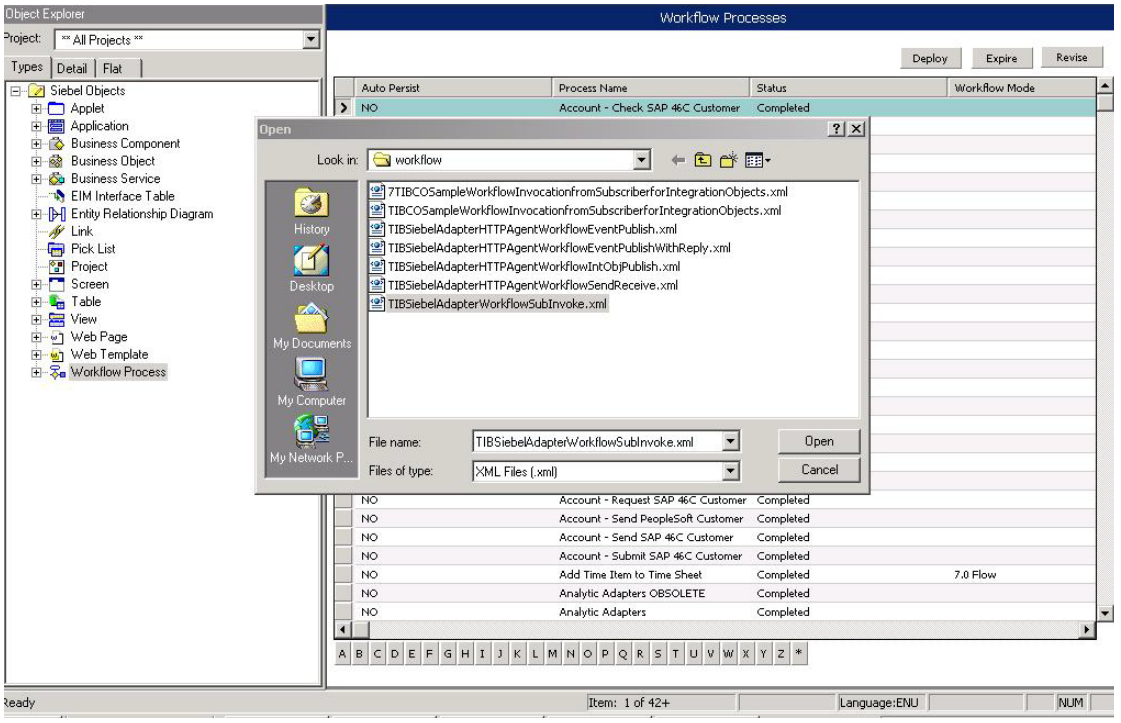
1. Open Siebel Tools and click **Workflow Process** in the Object Explorer.



2. Right-click the Workflow Process View panel, and from the drop-down menu, select **Import Workflow** as shown next.

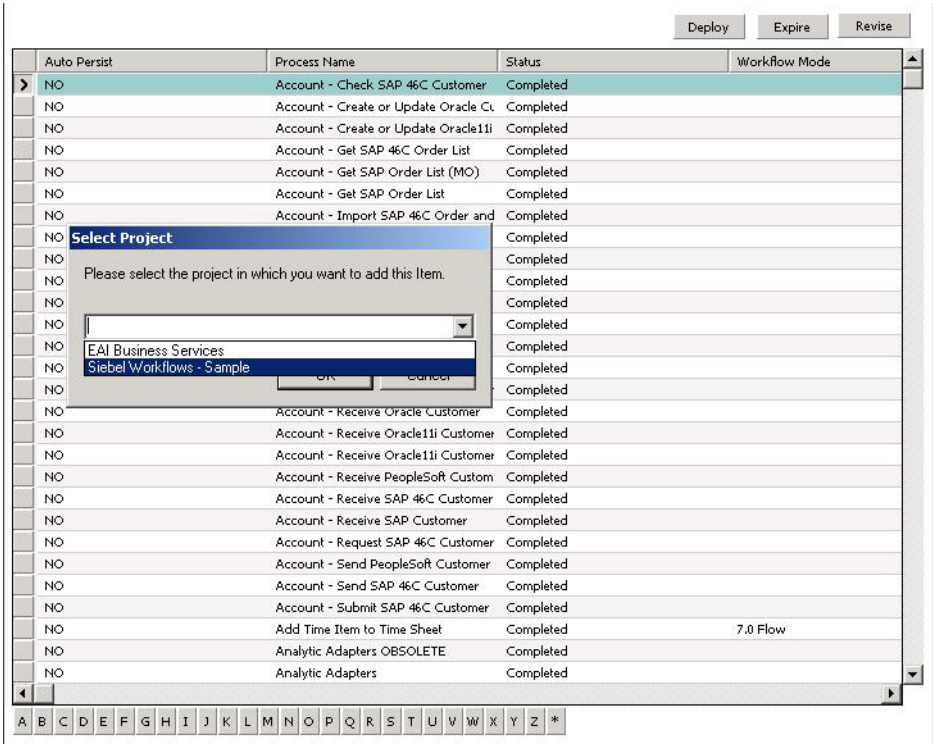


3. Select the required file as shown next.

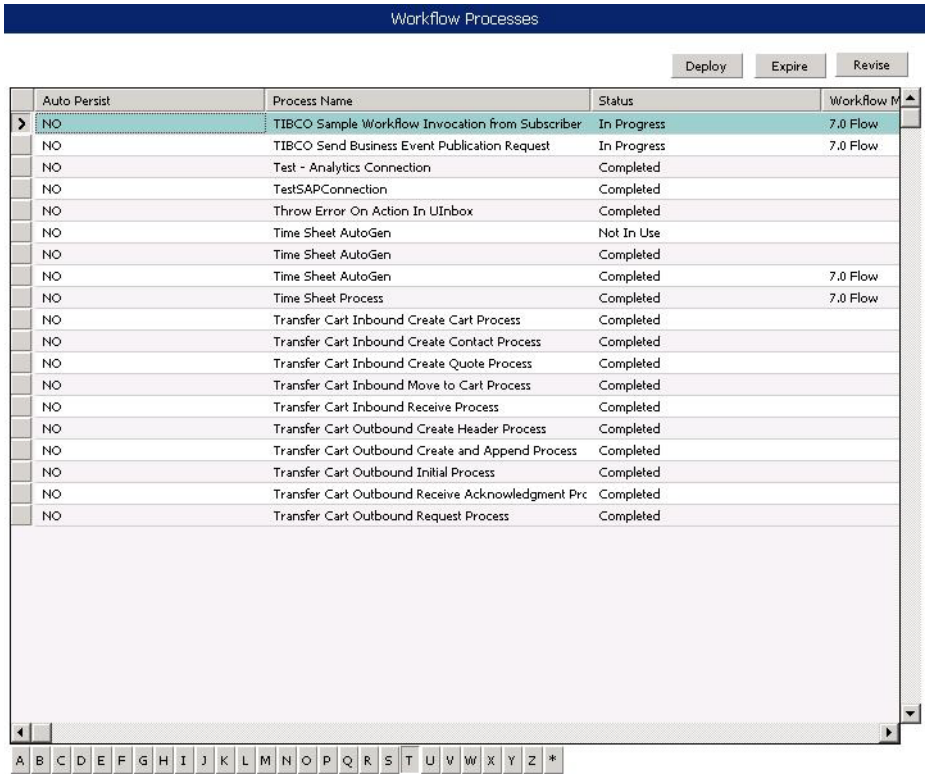


4. Click **Open** to import the workflow.
5. In the **Select Project** dialog, select the required project (in this example, **Siebel Workflows- Sample** project is selected from the drop-down) and click **OK**.

The project **Siebel Workflows- Sample** should be locked before the import of the Workflow Process starts.

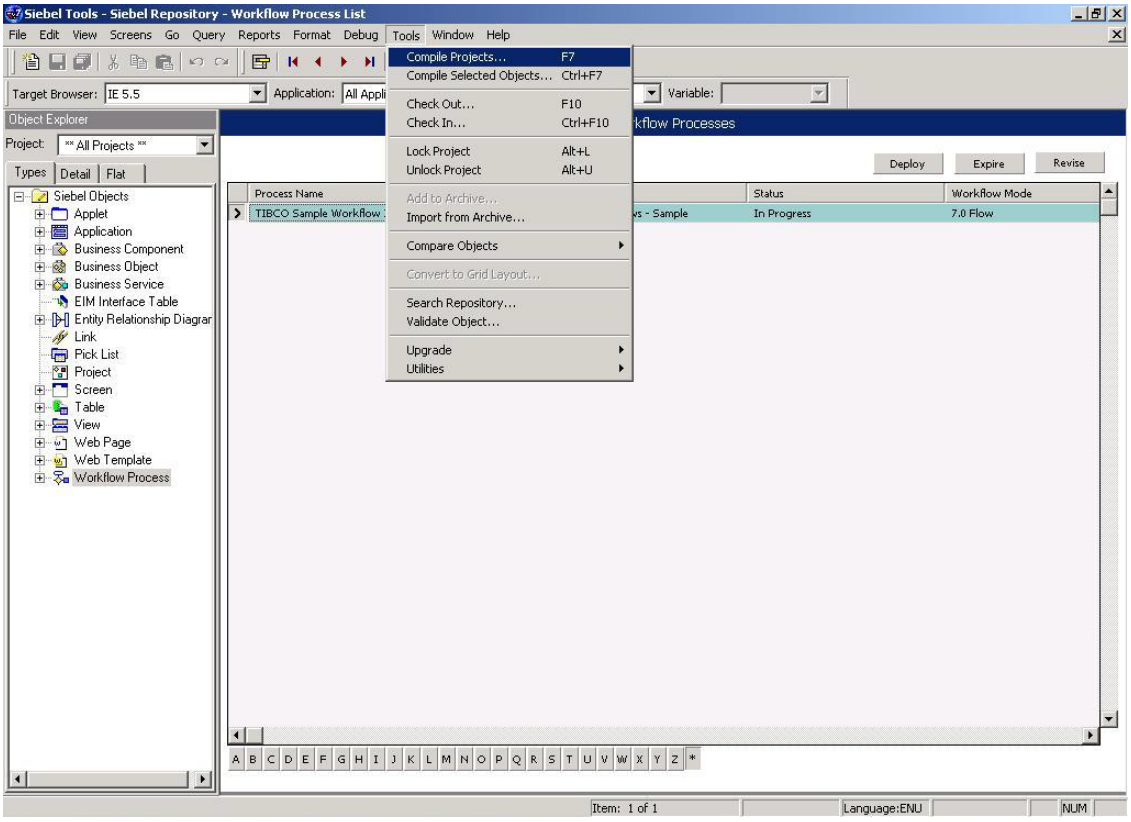


6. Make necessary changes in the imported workflow and click **Deploy** as shown next.

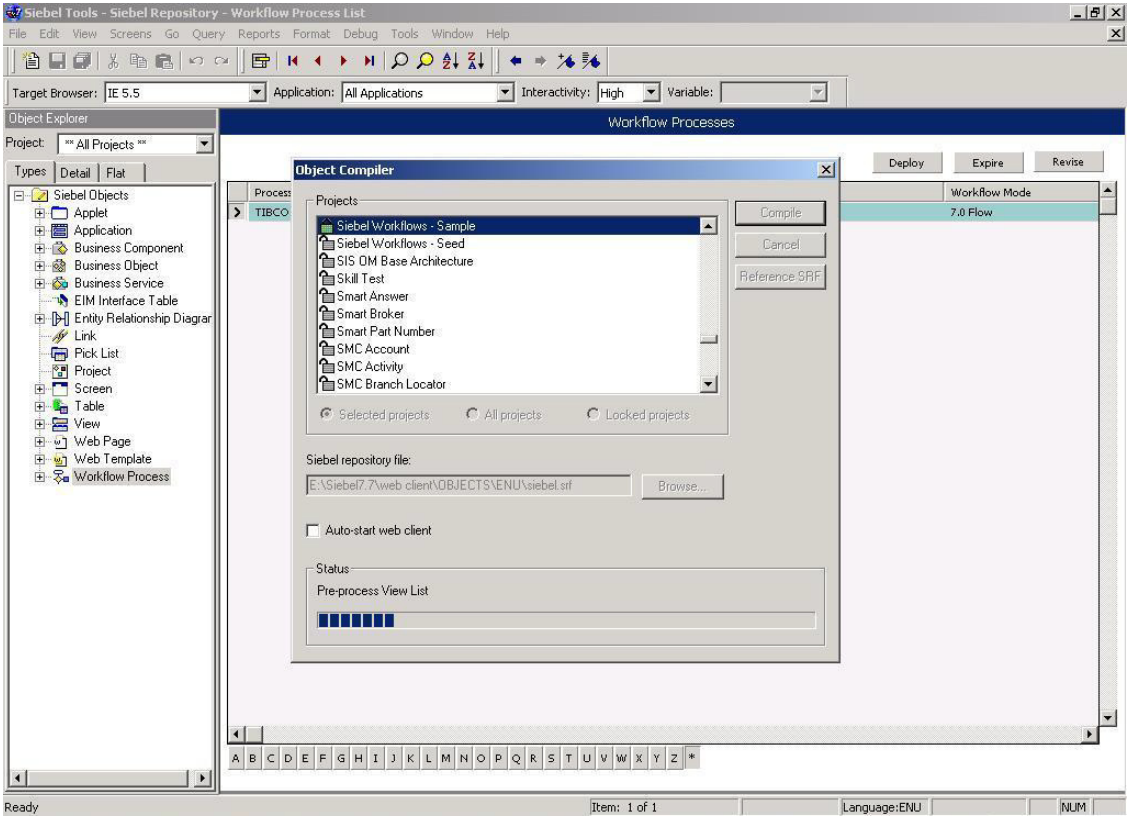


7. The status of the newly imported workflow process, `TIBCO Sample Worfklow Invocation from Subscriber` now shows **Completed**.
8. The newly imported workflow process, `TIBCO Sample Worfklow Invocation from Subscriber` has to be compiled.

The Siebel server should be stopped to complete this operation.

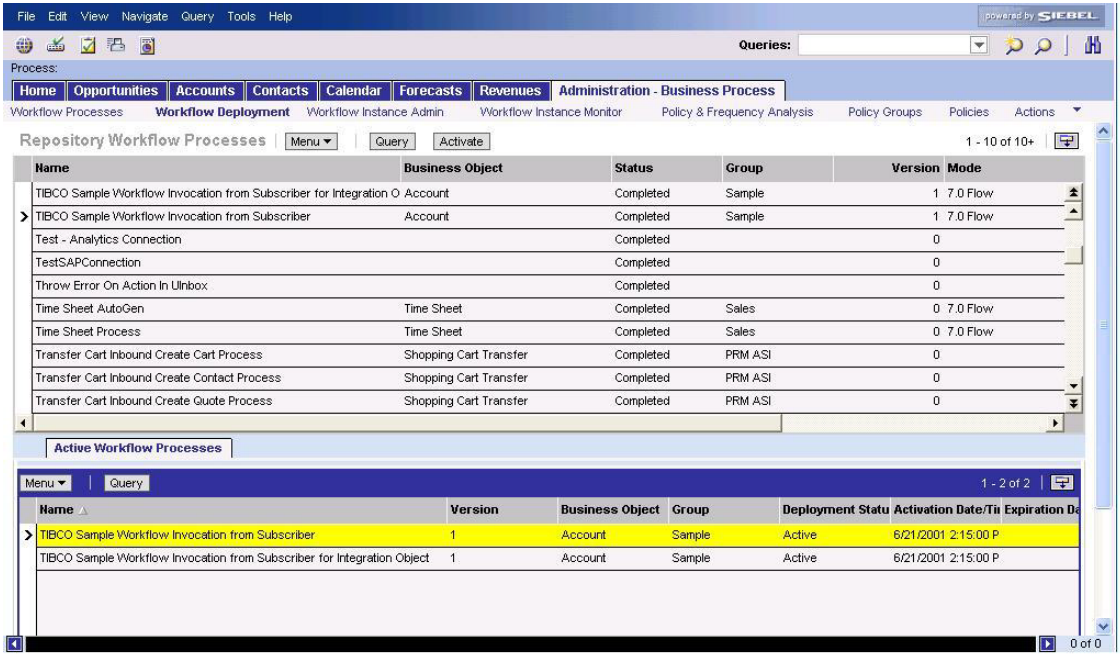


9. Select the check box `Selected projects`. Select the project `Siebel Worklow - Sample` as shown in figure below. S elect the Siebel Server repository(.srf) file and start the compile process.



10. Open Siebel Dedicated Client 7.7. Browse to **Administration - Business Process**. Click **Workflow Deployment**. Select the imported workflow and click **Activate** as shown next.

11. In the **Active Workflow Processes** view, query for the imported workflow. The **Deployment Status** is shown as `Active` for the imported workflow processes.



The Workflow Process import is now complete.

Appendix E Request-Response Operations

This appendix discusses Request-Response operations.

Topics

Introduction

The adapter supports Request-Response operations commonly referred to as RPCs. Request-response operations allow client applications to perform operation invocations.

The following operations are available:

- `getEvent()`– Retrieve Siebel data for a Request-Response operation client.
- `setEvent()`–Import Siebel data for a Request-Response operation client.
- `processEvent()`–Process Siebel data implemented by a Request-Response server when the Business Service `SendReceive` interface method is called.

The client applications that wish to perform Request-Response must make sure they are configured with the right subject in order to communicate with the right server.

Each operation is discussed in the following sections.

The getEvent() Operation

Purpose

The `getEvent()` operation is used to retrieve data related to the occurrence of a Business Event. This is basically the same as a publication request from the Business Service component. However, the resulting Business Document is not published, but it is returned to the requestor.

Declaration

```
i4 getEvent(businessEvent businessDoc,
       aeAdvisoryDocument advisoryDoc)
```

The class `businessEvent` is defined under

`/tibco/public/class/ae/siebel/tdschema/businessDocument/`

The class `aeadvisoryDocument` is defined under

/tibco/public/class/ae/baseDocument/

Parameters

Table 25 getEvent() Operation

Parameter	Direction	Description
businessDoc	In Out	This is both an In and an Out parameter. As an In parameter, it should be populated with a businessEvent name, operation type, and the relevant event keys in the top-level object. As an Out parameter, it will be populated with the fetched business document.
advisoryDoc	Out	An advisory document that describes the error condition when an exception is raised.

Remarks

The businessDoc parameter is a class instance derived from class businessEvent, which is defined under /tibco/public/class/ae/siebel/tdschema/businessDocument

Each business event class in a adapter configuration supports the AE Operation getEvent and the businessDoc parameter is a class instance of the business event class.

For example:

If the business event class in adapter configuration is called PubAccountTest, then the businessDoc parameter would be defined under /tibco/public/class/ae/siebel/<adapter instance>/businessDocument/PubAccountTest

And the operation definition for getEvent AE Operation would be defined under /tibco/public/class/ae/siebel/<adapter instance>/businessDocument/operation/PubAccountTest

And the businessDoc parameter type will be /tibco/public/class/ae/siebel/<adapter instance>/businessDocument/PubAccountTest

An exception will be raised on error and an instance of aeAdvisoryDocument that contains the error information will be returned. When the operation is successful aeAdvisoryDocument is not set.

This operation is supported by the adapter. Client applications that wish to invoke this operation must make sure it is configured to communicate with the adapter. The adapter service `ServerGetAccountContact` in `rpcservices.dat` provided with the installation demonstrates this method.

When the adapter cannot be reached or the subject name of the adapter is incorrectly configured, a timeout occurs.

The setEvent() Operation

Purpose

The `setEvent()` operation is used to apply data contained in a Business Document to the Siebel System. This is basically the same as the adapter receiving an incoming business document and applying the contents to Siebel. However, a processing result is returned to indicate whether the supplied business document was applied successfully or not.

Declaration

```
i4 setEvent( businessEvent businessDoc,
        aeAdvisoryDocument advisoryDoc)
```

The class `businessEvent` is defined under
`/tibco/public/class/ae/siebel/tdschema/businessDocument/`

The class `aeadvisoryDocument` is defined under
`/tibco/public/class/ae/baseDocument/`

Parameters

Table 26 setEvent() Operations

Parameter	Direction	Description/
`businessDoc`	In	Incoming business document. The parameter type is the business event class instance derived from the `businessEvent` class.
`advisoryDoc`	Out	An advisory document that describes the error condition when an exception is raised.

Remarks

The `businessDoc` parameter must be a class instance derived from class `businessEvent`, which is defined under `/tibco/public/class/ae/siebel/tdschema/businessDocument`. An exception will be returned, if it is any other class type.

Each business event class in adapter configuration supports the AE Operation `setEvent` and the `businessDoc` parameter is a class instance of the business event class.

For example:

If the business event class in adapter configuration is called `SubAccountTest` then the `businessDoc` parameter would be defined under
`/tibco/public/class/ae/siebel/<adapter instance>/businessDocument/SubAccountTest`

And the operation definition for `setEvent` AE Operation would be defined under
`/tibco/public/class/ae/siebel/<adapter instance>/businessDocument/operation/SubAccountTest`

And the `businessDoc` parameter type will be
`/tibco/public/class/ae/siebel/<adapter instance>/businessDocument/SubAccountTest`

An exception will be raised on error and an instance of `aeAdvisoryDocument` that contains the error information will be returned. When the operation is successful `aeAdvisoryDocument` is not set.

This operation is supported by the adapter. Client applications that wish to invoke this operation must make sure it is configured to communicate with the adapter. The adapter service `ServerSetAccountContact` in `rpcservices.dat` provided with the installation demonstrates this method.

When the adapter cannot be reached or the subject name of the adapter is incorrectly configured a timeout occurs.

The processEvent() Client Operation

Purpose

The `processEvent()` operation is used to get data from any external AE Operation server that has implemented the `processEvent()` AE Operation and return the data to the `SendReceive()` Business Service. This operation is not implemented by the adapter but it invokes `processEvent()` AE Operation as a client.

Declaration

```
i4 processEvent(businessEvent businessDoc,
            aeAdvisoryDocument advisoryDoc)
```

The class `businessEvent` is defined under `/tibco/public/class/ae/siebel/tdschema/businessDocument`

The class `aeAdvisoryDocument` is defined under `/tibco/public/class/ae/baseDocument`

Parameters

Table 27 processEvent() Client Parameters

Parameter	Direction	Description
`businessDoc`	In	The adapter sets this parameter with the business document that was fetched on the `SendReceive()` request from the Business Service. The parameter type is the business event class instance derived from class businessEvent.
`advisoryDoc`	Out	An advisory document that contains the data returned from the external source in it's `Data` attribute or describes the error condition when an exception is raised.

Remarks

The `businessDoc` parameter is the class instance derived from class `businessEvent`, which is defined under

/tibco/public/class/ae/siebel/tdschema/businessDocument.

This class instance business document is fetched by the adapter upon request from the SendReceive() method of the Business Service.

Each business event class in adapter configuration contains the definition of AE Operation processEvent and the businessDoc parameter is a class instance of the business event class.

For example:

If the business event class in adapter configuration is called PubAccountTest then the businessDoc parameter would be defined under

/tibco/public/class/ae/siebel/<adapter instance>/businessDocument/PubAccountTest

And the operation definition for processEvent AE Operation would be defined under

/tibco/public/class/ae/siebel/<adapter instance>/businessDocument/operation/PubAccountTest

And the businessDoc parameter type will be

/tibco/public/class/ae/siebel/<adapter instance>/businessDocument/PubAccountTest

An exception will be raised on error and an instance of aeAdvisoryDocument that contains the error information will be returned. When the operation is successful aeAdvisoryDocument will be set with the data returned from the external source in it's Data attribute.

The processEvent() AE Operation should not be invoked on the adapter since the adapter has not implemented this operation, rather it acts as AE Operation client and invokes the processEvent() and expects data from any external AE Operation server that has implemented processEvent().

Error Codes for the Request-Response Operations

The adapter returns various error codes for the Request-Response operations while processing the event. These error codes map to different error conditions. The following table contains descriptions for all the error codes.

Table 28 List of Error Codes

Error Code	Error Description
0	Event processed successfully.
-1	Event execution failed. Unknown error.
-2	Problem with the event configuration.
-3	Schema class not found in the event configuration.
-4	Minstance could not be created from the event.
-5	No records found matching the query.
-6	Multiple records found matching the query.
-7	Wrong search criteria, illegal characters.
-8	Match condition missing.
-10	Connection status, `Disconnected`.
-11	Connection status, `Suspended`.
-12	Invalid event (Event may not be configured for this adapter instance).
-19	Creating adapter engine failed.
-20	Invalid business document in the incoming event.
-21	Invalid search specification.
-22	Wrong login parameters.
-25	Request-Response Invocation failed.
-26	Invalid reply received.

Table 28 List of Error Codes

Error Code	Error Description
-27	Invalid reply data received.
-28	No reply received.
-30	Failed while executing the Siebel query.
-31	Failed to go to Siebel first record.
-32	Failed to retrieve Business Component.
-33	Failed to retrieve business object.
-34	Failed to get the value for a particular field in the Business Component.
-35	Failed to retrieve `MVG` Business Component.
-36	Failed to create new record.
-37	Field Name did not exist in the definition.
-38	Value entered in the field exceeds 100, which is the maximum size.
-39	Failed to write data in Siebel.
-40	Failed to undo written data.
-42	Invalid Siebel view mode.
-43	Failed to clear Business Component for query.
-44	Failed to delete Siebel record.
-45	Failed to retrieve picklist Business Component.
-46	Failed to retrieve picklist Business Component.
-49	Invalid workflow name.
-51	Failed to create event specification.
-52	Unknown event.
-55	Failed to create new property set.

Table 28 List of Error Codes

Error Code	Error Description
-65	Failed to remove child component.
-70	Invalid Business Service name.
-71	Failed to invoke Business Service.
-73	Failed to retrieve the Business Service.
-74	Invalid Business Component.
-75	Invalid business object.
-76	Connection to Siebel failed or timed out due to the adapter being idle for a long duration.
-77	Failed to set Siebel trace off.
-78	Failed to set Siebel trace on.
-79	No activation or match condition found for Business Component.
-100	Invalid operation code.
-101	No keys found in the message.
-102	Event timed out.
-103	No JMS server found.

Appendix F Message Formats

This appendix describes message formats for TIBCO Adapter for Siebel.

Topics

TIBCO ActiveEnterprise Wire Formats

The adapter supports three main message types:

- ActiveEnterprise Message— TIBCO ActiveEnterprise format.
- TIBCO Rendezvous Message—A non-ActiveEnterprise format. The published and subscribed wire format can be configured through TIBCO Designer.
- JMS Message— TIBCO JMS format.

Business Document Message Format

Within the `ActiveEnterprise Message` or `Rendezvous Message` or `JMS Message` formats there is the notion of a Business Document format (`baseBusinessDocument`). This format contains the actual business data. To write a custom application that can publish to or subscribe from the adapter, it is important to understand this format. Refer to , Business Document (baseBusinessDocument), page 384.

Advisory Document Format

The adapter publishes messages to advise of the operation status. This wire format is known as the Advisory Document (`baseAdvisoryDocument`). This format is useful because it allows you to write custom monitoring applications that monitor the health of the adapter. Refer to , Advisory Document (aeAdvisoryDocument), page 391.

If custom applications are to be developed to publish or subscribe to messages that conform to these wire formats, you are advised to purchase the TIBCO Adapter SDK. This is an adapter software development toolkit that allows quick deployment of your custom applications. The SDK fully supports these wire formats.

ActiveEnterprise Message, TIBCO Rendezvous Message and TIBCO JMS Message

The TIBCO ActiveEnterprise Message, TIBCO Rendezvous and TIBCO JMS wire formats are essentially wrappers around the actual data messages, which are instances derived from class `baseBusinessdocument`.

The difference between the ActiveEnterprise and TIBCO Rendezvous wire formats lies in the fact that the ActiveEnterprise wire format encapsulates the actual Business Document inside a message control block and the TIBCO Rendezvous wire format does not.

For example, in an ActiveEnterprise wire format there are control data such as "`^pfmt^`", "`^ver^`", and "`^prefixlist^`". These control data provide information for internal processing. Without this information, data may be incorrectly interpreted.

The wire format TIBCO Rendezvous Message has no such control data. It is simply the data in raw format. In this case, it contains instances derived from class `baseBusinessdocument`.

The TIBCO JMS message uses ActiveEnterprise XML format for sending and receiving data. Support for both `Durable` as well as `Non-Durable` messages has been provided.

Business Document (baseBusinessDocument)

Business Document has a sophisticated wire format. It contains business-event, control-related information, such as the name of the business event, whether the data is encrypted, and so on. This format is essentially a contract between the publisher and subscriber of the message.

The attributes of `baseBusinessDocument` are explained in the following table:

Table 29 baseBusinessDocument Attributes

Attribute	Type	Description
`ApplicationContext`	any	Sender context or closure.
`ApplicationId`	string	The application ID. The value is always `Siebeladapter`.
`ApplicationInstanceId`	string	An application instance ID that identifies the running instance in the TIBCO Repository.
`ComponentId`	string	A component identifier that identifies the running instance.
`ConfirmCode`	i4	Advice to the receiver of the message whether confirmation is required. Possible values are: 1: Indicates confirmation is not required. 2: Indicates confirmation required on error. 3: Confirmation required all the time.
`DateTimeStamp`	dateTime	Date and time of this message. It has the following format `<DDD MMM DD HH:MM:SS YYYY>`.
`Encrypted`	boolean	Indicates whether `DataSection` is encrypted or not.
`ErrorAddress`	string	A reply subject for communicating errors back. This could be a TIBCO Rendezvous-inbox address.
`LotId`	string	A lot number that allows grouping of business document messages.
`Name`	string	The name of the Business Document. It is a free format text. Typically, this is the name of a Business Event, for example, `New Order` or `Update Order`.
`ReferenceId`	string	A globally unique identifier.

Table 29 baseBusinessDocument Attributes

Attribute	Type	Description
`ReplyAddress`	string	A reply subject for communicating results back. This could be a RV-inbox address.
`VerbCode`	i4	One of the following values: 1. Insert. 2. Update. 3. Delete. 4. Insert_or_Update (this means update existing record or insert a new record if it does not exist.)
`Version`	string	Version information for this `baseBusinessDocument`. The current version is 3.

Relation to Siebel Data

Data that is published and subscribed by the adapter must be classes that are derived from `baseBusinessDocument`. Messages not conforming to the format will not be processed. Siebel data objects for a business event are then represented as a derived instance of the `baseBusinessDocument`. The following is an example of a Siebel object called `Account` defined as part of a Business Event called `BuscompPubEvent`.

```
<object name="BusCompPubEvent^Account"
lastModified="1048161812687" id="157">
                <assoc name="attribute">
                  <string name="isReadable" value="true"/>
                  <string name="isWriteable" value="true"/>
                  <string name="name" value="Name"/>
                  <string name="isKey" value="false"/>
                  <ref name="attributeType"
value="/tibco/public/scalar/ae/string"/>
                  <assoc name="extendedProperties">
                    <string name="siebelField" value="Name"/>
                    <string name="formatted" value="false"/>
                    <string name="required" value="true"/>
                  </assoc>
                </assoc>
                <assoc name="attribute">
                  <string name="isReadable" value="true"/>
                  <string name="isWriteable" value="true"/>
                  <string name="name" value="Location"/>
                  <string name="isKey" value="false"/>
                  <ref name="attributeType"
value="/tibco/public/scalar/ae/string"/>
```

```
                    <assoc name="extendedProperties">
                      <string name="siebelField" value="Location"/>
                      <string name="formatted" value="false"/>
                    </assoc>
                  </assoc>
                  <string name="family" value="ae"/>
                  <string name="objectType" value="class"/>
                </object>


              <dir name="businessDocument"
lastModified="1048161731910" id="-55">
                <object name="siebelReservedClass"
lastModified="1048161812687" id="189">
                  <assoc name="attribute">
                    <string name="isReadable" value="false"/>
                    <string name="isWriteable" value="false"/>
                    <string name="default" value=""/>
                    <string name="name"
value="siebelReservedField"/>
                    <ref name="attributeType"
value="/tibco/public/scalar/ae/string"/>
                  </assoc>
                  <string name="family" value="ae"/>
                  <string name="objectType" value="class"/>
                </object>
                <object name="BusCompPubEvent"
lastModified="1048161812687" id="190">
                  <ref name="superclass"
value="/tibco/public/class/ae/siebel/tdschema/businessDocument/bus
inessEvent"/>
                  <assoc name="extendedProperties">
                    <string name="BusCompPubEvent_Comments"
value=""/>
                  </assoc>
                  <assoc name="attribute">
                    <string name="isReadable" value="true"/>
                    <string name="isWriteable" value="true"/>
                    <string name="name"
value="BusCompPubEvent^Account"/>
                    <ref name="attributeType"
value="/tibco/public/sequence/ae/class/ae/siebel/SiebelAdapterConf
iguration/sequence         [BusCompPubEvent^Account]"/>
                  </assoc>
                  <string name="family" value="ae"/>
                  <string name="objectType" value="class"/>
                </object>


                <dir name="SiebelAdapterConfiguration"
lastModified="1048161731910" id="-48">
  <object name="sequence[BusCompPubEvent^Account]"
lastModified="1048161812687" id="158">
    <ref name="elementType"
value="/tibco/public/class/ae/siebel/SiebelAdapterConfiguration/Bu
sCompPubEvent^Account"/>
```

```
    <string name="family" value="ae"/>
    <string name="objectType" value="sequence"/>
  </object>
               </dir>
```

Example Output in ActiveEnterprise Wire Format

The following is the published message from the above example captured with the utility `rvstream`.

```
domain.PubTest.adsbl.SiebelAdapterConfiguration.PublicationService
{
  RVMSG_INT       2  ^pfmt^        10
  RVMSG_INT       2  ^ver^         30
  RVMSG_INT       2  ^type^        1
  RVMSG_INT       2  ^encoding^    1
  RVMSG_RVMSG   229  ^prefixList^
  {
    RVMSG_STRING  74  default
"/tibco/public/class/ae/siebel/SiebelAdapterConf
    RVMSG_STRING  69  1
"/tibco/public/sequence/ae/class/ae/siebel/Siebe
    RVMSG_STRING  57  2
"/tibco/public/class/ae/siebel/SiebelAdapterConf
  }
  RVMSG_RVMSG    44  ^tracking^
  {
    RVMSG_STRING  28  ^id^  "2Cmzo35fPSFeVk7uPPzzw7pUzzw"
  }
  RVMSG_RVMSG  2361  ^data^
  {
    RVMSG_STRING    16  ^class^                  "BusCompPubEvent"
    RVMSG_RVMSG   2089  BusCompPubEvent^Account
    {
      RVMSG_INT      4  ^idx^    1
      RVMSG_STRING  34  ^class^
"sequence[BusCompPubEvent^Account]"
      RVMSG_RVMSG   81  ^1^
      {
        RVMSG_INT      4  ^idx^     2
        RVMSG_STRING  24  ^class^   "BusCompPubEvent^Account"
        RVMSG_STRING   3  Name      "a*"
        RVMSG_STRING   2  Location  "*"
      }
      RVMSG_RVMSG   84  ^2^
      {
        RVMSG_INT      4  ^idx^     2
        RVMSG_STRING  24  ^class^   "BusCompPubEvent^Account"
        RVMSG_STRING   4  Name      "abc"
        RVMSG_STRING   4  Location  "abc"
      }
      RVMSG_RVMSG   86  ^3^
      {
        RVMSG_INT      4  ^idx^     2
        RVMSG_STRING  24  ^class^   "BusCompPubEvent^Account"
        RVMSG_STRING   5  Name      "abcd"
```

```
  RVMSG_STRING    5  Location  "abcd"
}
RVMSG_RVMSG    87  ^4^
{
  RVMSG_INT       4  ^idx^     2
  RVMSG_STRING   24  ^class^   "BusCompPubEvent^Account"
  RVMSG_STRING    5  Name      "abcd"
  RVMSG_STRING    6  Location  "india"
}
RVMSG_RVMSG    93  ^5^
{
  RVMSG_INT       4  ^idx^     2
  RVMSG_STRING   24  ^class^   "BusCompPubEvent^Account"
  RVMSG_STRING    7  Name      "ABCXYZ"
  RVMSG_STRING   10  Location  "Bangalore"
}
RVMSG_RVMSG    88  ^6^
{
  RVMSG_INT       4  ^idx^     2
  RVMSG_STRING   24  ^class^   "BusCompPubEvent^Account"
  RVMSG_STRING    5  Name      "ABHI"
  RVMSG_STRING    7  Location  "ABXBBX"
}
RVMSG_RVMSG    89  ^7^
{
  RVMSG_INT       4  ^idx^     2
  RVMSG_STRING   24  ^class^   "BusCompPubEvent^Account"
  RVMSG_STRING   10  Name      "abhi12232"
  RVMSG_STRING    3  Location  "sd"
}
RVMSG_RVMSG    93  ^8^
{
  RVMSG_INT       4  ^idx^     2
  RVMSG_STRING   24  ^class^   "BusCompPubEvent^Account"
  RVMSG_STRING    8  Name      "ABhi123"
  RVMSG_STRING    9  Location  "Banglore"
}
RVMSG_RVMSG    93  ^9^
{
  RVMSG_INT       4  ^idx^     2
  RVMSG_STRING   24  ^class^   "BusCompPubEvent^Account"
  RVMSG_STRING    8  Name      "abhinew"
  RVMSG_STRING    9  Location  "Banglore"
}
RVMSG_RVMSG    87  ^10^
{
  RVMSG_INT       4  ^idx^     2
  RVMSG_STRING   24  ^class^   "BusCompPubEvent^Account"
  RVMSG_STRING    7  Name      "alalal"
  RVMSG_STRING    4  Location  "ggg"
}
RVMSG_RVMSG    87  ^11^
{
  RVMSG_INT       4  ^idx^     2
  RVMSG_STRING   24  ^class^   "BusCompPubEvent^Account"
  RVMSG_STRING    6  Name      "alksl"
  RVMSG_STRING    5  Location  "ajsh"
```

```
}
RVMSG_RVMSG   93  ^12^
{
  RVMSG_INT      4  ^idx^     2
  RVMSG_STRING  24  ^class^   "BusCompPubEvent^Account"
  RVMSG_STRING   6  Name      "Amit1"
  RVMSG_STRING  11  Location  "Bangalore1"
}
RVMSG_RVMSG   84  ^13^
{
  RVMSG_INT      4  ^idx^     2
  RVMSG_STRING  24  ^class^   "BusCompPubEvent^Account"
  RVMSG_STRING   7  Name      "aparna"
  RVMSG_STRING   1  Location  ""
}
RVMSG_RVMSG   89  ^14^
{
  RVMSG_INT      4  ^idx^     2
  RVMSG_STRING  24  ^class^   "BusCompPubEvent^Account"
  RVMSG_STRING   7  Name      "aparna"
  RVMSG_STRING   6  Location  "india"
}
RVMSG_RVMSG   92  ^15^
{
  RVMSG_INT      4  ^idx^     2
  RVMSG_STRING  24  ^class^   "BusCompPubEvent^Account"
  RVMSG_STRING   7  Name      "aparna"
  RVMSG_STRING   9  Location  "india234"
}
RVMSG_RVMSG   90  ^16^
{
  RVMSG_INT      4  ^idx^     2
  RVMSG_STRING  24  ^class^   "BusCompPubEvent^Account"
  RVMSG_STRING  11  Name      "arvind1122"
  RVMSG_STRING   3  Location  "US"
}
RVMSG_RVMSG   91  ^17^
{
  RVMSG_INT      4  ^idx^     2
  RVMSG_STRING  24  ^class^   "BusCompPubEvent^Account"
  RVMSG_STRING   7  Name      "asdfas"
  RVMSG_STRING   8  Location  "asdfasd"
}
RVMSG_RVMSG   92  ^18^
{
  RVMSG_INT      4  ^idx^     2
  RVMSG_STRING  24  ^class^   "BusCompPubEvent^Account"
  RVMSG_STRING   6  Name      "ashte"
  RVMSG_STRING  10  Location  "bangalore"
}
RVMSG_RVMSG   94  ^19^
{
  RVMSG_INT      4  ^idx^     2
  RVMSG_STRING  24  ^class^   "BusCompPubEvent^Account"
  RVMSG_STRING  11  Name      "ashu goyal"
  RVMSG_STRING   7  Location  "rohtak"
}
```

```
      RVMSG_RVMSG   84  ^20^
      {
        RVMSG_INT      4  ^idx^     2
        RVMSG_STRING  24  ^class^   "BusCompPubEvent^Account"
        RVMSG_STRING   4  Name      "ask"
        RVMSG_STRING   4  Location  "jas"
      }
      RVMSG_RVMSG   87  ^21^
      {
        RVMSG_INT      4  ^idx^     2
        RVMSG_STRING  24  ^class^   "BusCompPubEvent^Account"
        RVMSG_STRING   5  Name      "ASKA"
        RVMSG_STRING   6  Location  "ASKA1"
      }
    }
    RVMSG_INT        4  VerbCode                 4
    RVMSG_STRING    27  ApplicationInstanceId
"SiebelAdapterConfiguration"
    RVMSG_STRING    28  ReferenceId
"0D01aMs/PSFeVkl4kMzzw7t-zzw"
    RVMSG_STRING    27  ComponentId
"SiebelAdapterConfiguration"
    RVMSG_STRING    16  Name                    "BusCompPubEvent"
    RVMSG_INT        4  Version                 3
    RVMSG_STRING     1  ApplicationId           ""
  }
}
```

Advisory Document (aeAdvisoryDocument)

The Advisory Document is used to return the result of an operation executed on the adapter. The Advisory Document message can be used to allow the real-time monitoring application to respond to specific events or simply allow some monitoring application to persist certain events in the database.

The Advisory Document is defined as follows:

Table 30 aeAdvisoryDocument Attributes

Attribute	Type	Description
`Analysis`	string	Supplementary information such as reasons for this advisory and possible workarounds.
`ApplicationContext`	any	Sender context or closure.
`ApplicationId`	string	The application ID.
`ApplicationInstanceId`	string	An application instance ID that identifies the running instance. It has the following format: <*pid*>@<*hostname*> where `pid` is the process ID and `hostname` is the name of the host where the message came from.
`Class`	string	The advisory class.
`Data`	any	The data included with this advisory, if any.
`DateTimeStamp`	dateTime	The date and time of this message. It has the following format `<DDD MMM DD HH:MM:SS YYYY>`.
`Description`	string	The advisory description.
`Name`	string	The name of the advisory message instance.
`ReferenceId`	string	A unique ID for this `aeAdvisoryDocument`.

Table 30 aeAdvisoryDocument Attributes

Attribute	Type	Description
Severity	i4	Sets the severity level. Possible values are: 1: Information. 2: Warning. 3: Error. 4: Fatal.
Subject	string	The subject name of the original data that triggered the advisory.
Version	i4	The version information for this aeAdvisoryDocument. The current version is 3.

The following is an example message output captured with the utility `aelisten`.
`ALERT.SERVER.PUBLISHER`

```
{
  RVMSG_INT       2  ^type^         1
  RVMSG_INT       2  ^pfmt^         10
  RVMSG_INT       2  ^ver^          30
  RVMSG_RVMSG    55  ^prefixList^
  {
    RVMSG_STRING  36  default
"/tibco/public/class/ae/baseDocument"
  }
  RVMSG_RVMSG  350  ^data^
  {
    RVMSG_STRING    19  ^class^                "aeAdvisoryDocument"
    RVMSG_STRING    19  Class                  "Status Information"
    RVMSG_INT        4  Version                3
    RVMSG_STRING    12  ApplicationInstanceId  "1268@ben_nb"
    RVMSG_STRING    30  ReferenceId
"33c--C--CQdTh-uQ-//Ic4I2x-KgQ"
    RVMSG_STRING     1  Analysis               ""
    RVMSG_DATETIME  12  DateTimeStamp          21-SEP-2000 19:26:50
    RVMSG_STRING    16  Name                   "Event Execution"
    RVMSG_STRING    61  Description            "[ERR ] No records
found for 'NewOrder^Order Entry - Orders'."
    RVMSG_INT        4  Severity               3
    RVMSG_STRING    16  ApplicationId          "serverPublisher"
  }
```

Structure of the Data Section for Different Operations

Reply from Siebel application after INSERT, UPDATE or DELETE.

Following are the types of service where Siebel returns the data after the operation is completed:

1. Invoking the Business Service.
2. RPC Set operation using Integration Objects/Business Components.
3. Subscription Service update operation using Integration Objects/Business Components.
4. Invoking Workflow.

Status data in case of integration objects will be in the form an XML string containing complete integration object record returned from Siebel.

This XML string will return as a part of event keys wrapped in an advisory document.

In case of Business Components, the Siebel application will return the result and row ID of the impacted record and keys configured as match conditions by the user. The results will come in event keys wrapped under an advisory document.

Appendix G Siebel Integration Objects

This appendix describes Siebel Integration Objects.

Topics

Overview

Siebel Integration Objects allow you to represent integration metadata for Siebel Business Objects, XML, SAP IDOCs, and SAP BAPIs as common structures that the EAI infrastructure can understand. Because these Integration Objects adhere to a set of structural conventions, they can be traversed and transformed as required.

The typical integration project involves transporting data from one application to another. For example, you may want to synchronize data from a back-office system with the data in your Siebel application. You may want to generate a quote in the Siebel application and perform a query against your Enterprise Resource Planning (ERP) system transparently.

A message typically consists of header data that identifies the message type and structure, and a body that contains one or more instances of data—for example, orders, accounts, or employee records. A typical message structure for the integration object, `Sample Account` is as follows:

```
<Siebel Message IntObjectName=”Sample Account”>
    <ListOfSample Account>
        <Account>
            <Name>John<\Name>
            <Location>Palo Alto<\Location>
        <\Account>
    <\ListOfSample Account>
<\Siebel Message>
```

Note that the adapter schema structure for the integration object is based on the above message.

Advantages of Using Integration Objects

- Any operation using Integration Objects is transactional - i.e, either the whole operation succeeds or the entire operation fails.
- Working with Picklist business components and configuring the adapter to work with Business Components have the following limitations. These limitations do not exist with integration objects.
  - The adapter does not update the `Unbounded Picklist` fields if the value in the incoming message is not part of the pre-configured options for the Picklist.
  - The adapter does not update `Constraint` Picklist fields.
  - The adapter does not update Picklist fields in a specific order. This can cause problems where Picklist values are dynamic and depend on the value in another Picklist field.
  - When data for a Picklist field fetches multiple rows, the adapter will be unable to update the field with any value.
- Siebel 7.5.2 supports methods to fetch Integration Object Query Results by page. This allows a form of data chunking where large messages can be split into multiple smaller messages.
- Integration objects support Associations and setting of the primary with ease.
- Ability to specify multiple user keys for an integration component. For example, the first message might contain an `Integration Id` for the Account Integration Component. This is used as the key to locate a unique record. The second message may contain `Account Name` and `Location`, these are then used as the key fields to locate a unique record. Multiple user keys may be defined for an Integration Component. This definition is possible in Siebel Tools. A Business Components configuration means that you will need to create different Business Events for each key option.
- Allows configuration to ignore errors while setting picklist fields.

Working with integration objects guarantees transactions. However, consider the following scenario with an integration object containing `Account` and `Contact` Integration components for an `Insert` operation - The account is inserted successfully, but while inserting the contact, there is an error and the whole transaction is rolled back. However, since the account was written, Siebel events like `Buscomp_WriteRecord` are already fired and any scripts under these are already executed. While working with integration objects, consider using a Workflow policy or Action mechanism for a custom processing. The Workflow policy will be violated only when the final write is successful and the transaction committed.

Integration Object and Integration Object Instance

Understanding the difference between integration objects and integration object instances is important, especially in regard to the way they are discussed here. An integration object, in the context of Siebel EAI, is metadata; that is, it is a generalized representation or model of a particular set of data. An integration object is also referred to as a Siebel Message object. An integration object instance, on the other hand, is actual data organized in the format or structure of the integration object. Consider a simple example, using partial data, as below:

Integration Object

```
Sample Account
Account
-Name
-Location
Contact
-First Name
-Last Name
```

Integration Object Instance

```
<Siebel Message IntObjectName="Sample Account">
    <ListOfSample Account>
        <Account>
            <Name>John<\Name>
            <Location>Palo Alto<\Location>
            <ListOfContact>
                <Contact>
                    <First Name>Tibco<\First Name>
                    <Last Name>Software<\Last Name>
                <Contact>
            <ListOfContact>
        <\Account>
    <\ListOfSample Account>
<\Siebel Message>
```

Structure of Siebel Integration Objects

The Siebel integration object provides a structure that accommodates many types of data. Most specifically, prebuilt EAI integration objects describe the structure of Siebel Business Objects, SAP IDOCs, SAP BAPIs, XML, and external data. Most integration projects require the use of an integration object that describes Siebel Business Objects, either in an outbound direction—a query operation against a Siebel integration object—or an inbound direction—a synchronize operation against a Siebel integration object. An integration object consists of one Parent Integration Component—sometimes referred to as the root component or the primary integration component. The Parent Integration Component corresponds to the primary Business Component of the Business Object you chose as the model for your integration object.

For example, assume you chose the `Account` Business Object to base your integration object `Account_01` on. The `Account` Business Object in Siebel Tools has an `Account` Business Component as its primary Business Component. In the `Account_01` integration object, every child component will be represented as either a direct or indirect child of the primary Business Component named `Account`. Each child component can have one or more child components. In Siebel Tools, if you look at the integration components for an integration object you have created, you will see that each component can have one or more fields.

Integration Object Structure

The Account parent integration component can have both fields and child integration components. Each integration component can also have child integration components and fields. A structure of this sort represents the metadata of an Account integration object. You may choose to inactivate components and fields. By inactivating components and fields, you can define the structure of the integration object instances entering or leaving the system.

```
Account(Parent Integration Component)
-Name (Integration Component Fields)
-Location(Integration Component Fields)
Contact(Child Integration Component)
-First Name(Integration Component Fields)
-Last Name(Integration Component Fields)
```

User Keys

User Key is a group of fields whose values must uniquely identify a Siebel Business Component record. During inbound integration, User Keys are used to determine whether the incoming data updates an existing record or inserts a new one.

In Siebel Tools, the Integration Component Key specifies which of the integration component fields should be used for a user key. In Siebel Tools, you can look up this information yourself before configuring the schema in the designer. Based on the User Keys you have to choose the fields. The user key fields that you wish to use must be configured in the schema. Before choosing the user key make sure that the user key is valid and enabled.

How Adapter uses Integration Objects

Based on the business requirements, integration using integration objects can be done. The adapter supports use of integration objects in all the four services. The functionality can be explained as follows.

Publication Service

The adapter can publish the integration object instance based on the query provided. In order to do that configure a Publication Service with Publication type as `Siebel Integration Components`. Invoke the service with `Key Name/Value`.

Subscription Service

The adapter can `insert/update/upsert` or `delete` the integration object instance based on the data provided in the incoming request. In order to do that configure a Subscription Service with subscription type as `Siebel Integration Components`. Invoke the service with appropriate data.

Request-Response Service

You can either `Query Integration Components` or `Insert/Update Integration Components` using this service.

Request-Response Invocation Service

Using this service an integration object instance can directly be sent to external application without querying Siebel. To do this choose the Invocation type as `SendReceive Integration Objects`. While invoking the adapter from Siebel send the data as follows.

`KeyName` :- `SiebelMessage`

`KeyValue` :- `<Integration Object Instance>`

The adapter in this case recognizes the event and does not query the Siebel data base. Instead makes an ae message out of the incoming requests `KeyValue` (i.e. `<Integration Object Instance>`) and sends the request to the external application. The reply in this case can be a integration object, which is sent back to Siebel.

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